

SCIENCE AND INDUSTRY

# MANUFACTURERS RECORD

DO NOT LOSE

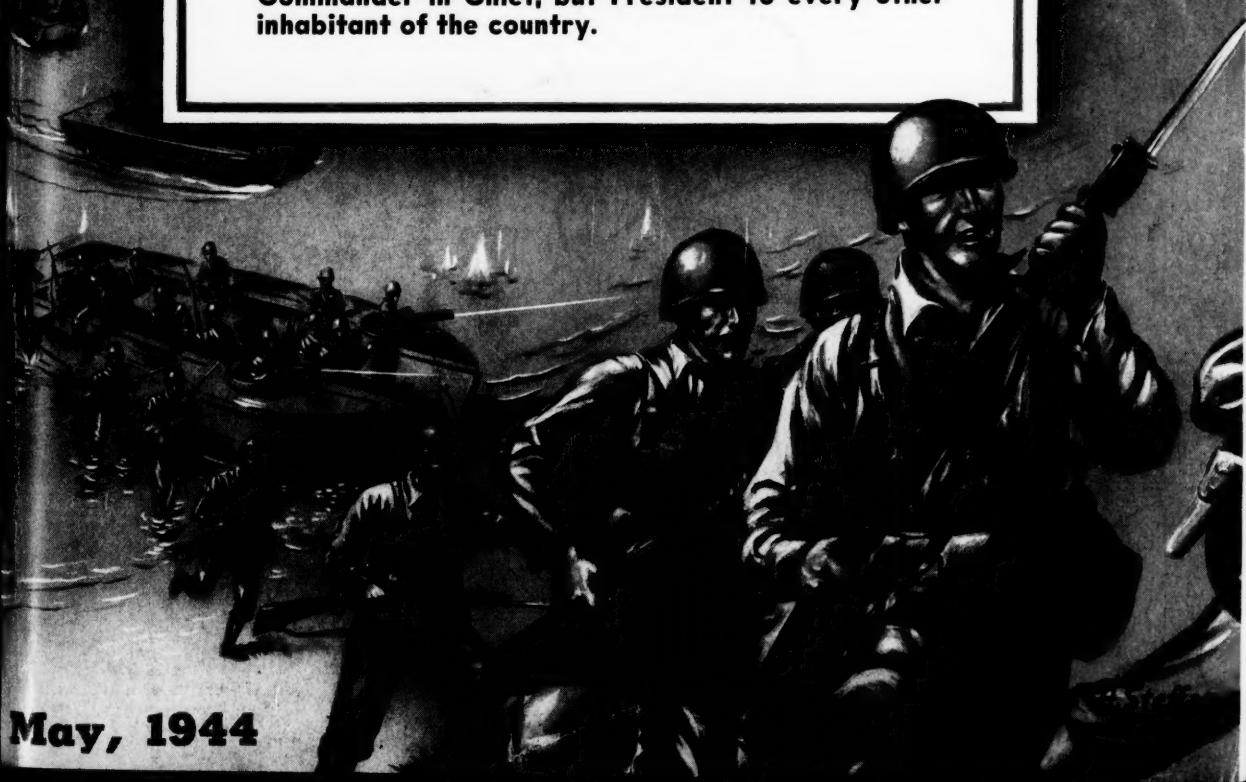
## The Constitution Def.

Article 11, Section 2 of the Constitution  
United States reads as follows:

*The President shall be Commander in Chief of the Army and Navy of the United States, and of the Militia of the several States, when called into the actual service of the Union.*

No amendment to the Constitution has been adopted that changes this part of this article.

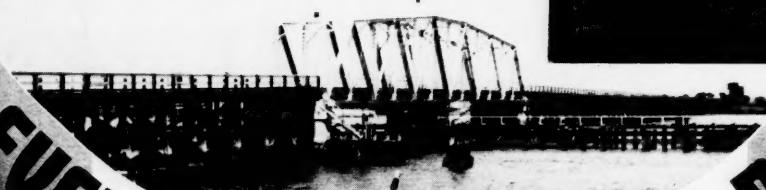
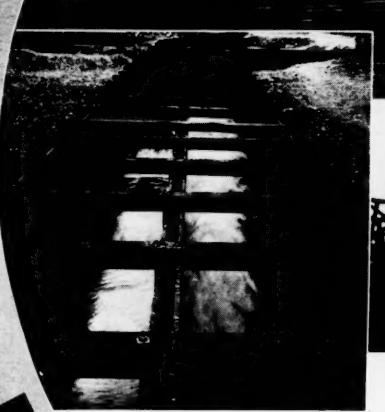
The President of the United States is Commander in Chief to every one who, by oath or affirmation enters the armed services of the nation. He is not Commander in Chief, but President to every other inhabitant of the country.



May, 1944

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MAY N

# MANUFACTURERS RECORD

ESTABLISHED 1882

*A Publication for Executives*

Volume 113

MAY, 1944

Number 5

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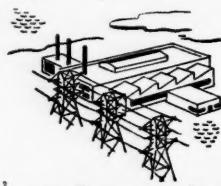
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Swift-flowing torrents of water... whirling turbines... rivers of surging electrical energy.

That's a story of the powerful new South which is sending mountains of arms and materials to fighting men the world around. And that's a preview of a postwar South, a land of vast and varied resources waiting to be turned into countless peacetime products—by means of man's ingenuity and the South's unsurpassed power reserves. Actually, the South's hydro-electric power potentialities exceed those of

any like section of the nation. That means much to the industrial planners who can hear the humming song of this Southern power.

And it means much to Delta Air Lines, which has been serving the great South for two decades. Time-conserving, war-speeding travel is the first concern of Delta today. But every spare moment is devoted by Delta to plans for the extension of present routes to meet the needs of the South's expanding industrial economy... plans for finer and swifter air transportation for a still greater South, fulfilling its destiny as a major source of power in the world's greatest nation.

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FOR MEMORIALS

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ufacture of fastenings . . . maintains a large staff of field service engineers. New, colorful 1944 catalog and reference book will be ready soon.

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Milwaukee • Cincinnati • Houston  
Representatives in Principal Cities



## **Little Grains of Sand**

*"Little drops of water, little grains of sand,  
Make the mighty ocean, and the pleasant land."*

Can the federal government lay down rules and regulations for the formation and internal regulation of a political party? Can it regulate the right of that party, which as a political party seeking to select candidates has nothing to do with the functioning of government but is merely interested in selecting candidates for which the group it represents wishes to vote? Can government tell any group of men that they must include in their numbers any one who wishes to circumvent their cause and dictate to them who their candidates should be?

Let us forget for a moment the Democratic and Republican parties and consider the communists and the socialists. Suppose the government compelled these two recognized parties to accept into their membership any man or organized group of men who had banded together for the sole purpose of exterminating that party in its party primaries? A few thousand determined men opposed to their fundamental principles but willing to vote in their primaries, if the government compels these parties to accept such votes, could, by naming conservative candidates wipe these parties out of existence at one election.

In case this seems fantastic, you should direct your attention to the precedent that the New Deal has set in stealing the Democratic Party and that it is now, in desperation, trying to make legally effective for its further perpetuation by the massing of ignorant votes in the Southern States in support of its candidates in party primaries.

Two members of organized labor attempted to become elected to the board of directors of the American Telephone and Telegraph Co. They were both employees of that company. They were defeated in their attempt by a vote at a stockholders meeting of approximately 11 million to 13 thousand. It would seem from this example that the stockholders of business enterprises prefer a management that can manage rather than place their company in the position of lap dog for labor leaders.

The MANUFACTURERS RECORD offers its readers, an idea and through some of those readers who have access to official ears it is hoped that this idea may reach "headquarters."

All great men are egotists. If they were not, if they did not have confidence in themselves, they would not be great men.

The President has precedent breaking record. No one can deny this fact. How history will interpret that record is a matter for the generations to come to decide. Just the same, it is a precedent breaking record.

The President, if he wishes it to be so, will unquestionably be renominated by his party for re-election. If he decides to accept the nomination he will be faced by an aggressive, honest and intelligent candidate who is in the full vigor of a matured manhood. If he wins the election it will be by the most narrow of margins.

If he wins it is as certain as the fact that this magazine is printed on paper that he will have a Congress that will be antagonistic to his domestic governmental policies. It is quite possible that such a Congress will carry its disagreements with the Executive into the fields of foreign affairs. It has happened before, and history has an uncanny way of repeating itself.

The idea presented here is merely this: Permit the party convention to nominate the President for another term. Have the delegates sing hosannas and parade with their banners in the greatest demonstration ever given to a candidate. After the confusion has been quieted by the speaker have the President deliver the greatest speech of his life (he has a good speech writing staff and this is one time that they should outdo themselves) declining the nomination on the grounds that he has served his country to the best of his ability, that the physical strain of office is more than should be expected of one man for more than twelve years and that he wishes to step aside and leave the leadership of the party and the hopes of the country in the hands of the best man that his party can select.

This course of action would permit the President to go out of office as he came in, with a burst of acclaim and personal applause.

---

We read in the papers that dairymen in Georgia deliberately destroy, pour down their drains—if they have drains—and most of them have, about a thousand gallons of milk every Monday of every week. This is a quart of milk each for four thousand families.

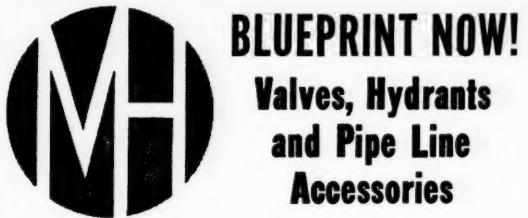
This milk, in nineteen Georgia counties backs up on Sundays and is thrown away on Mondays. Cows do not recognize that Sunday is a day of non-production.

The reason for this wastage can be directly traced to the brilliant thinking of the bureaucrats in Washington. They restricted milk deliveries in order to conserve gasoline and tires.

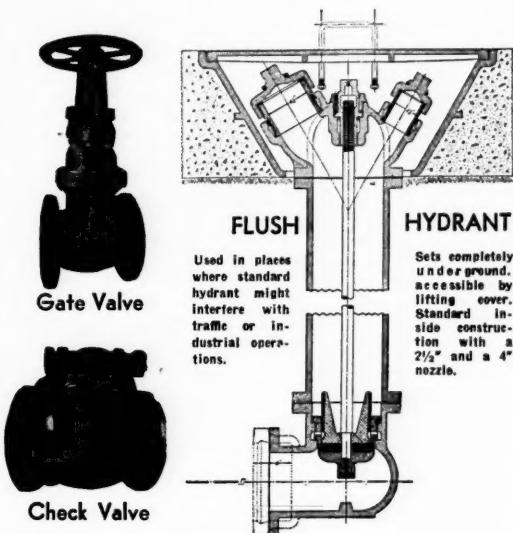
Why could not this milk be diverted for use in making ice cream? Another government bureau restricts the percentage of milk that may be used for the manufacture of ice cream.

And we as boys were taught in our schools to sing "the land of the free and the home of the brave."

MAY NINETEEN FORTY-FOUR



There is need now of "facing the problems of peace in advance of victory." We are glad to cooperate by furnishing data and information so that you may incorporate M&H Valves and Hydrants in your specifications for postwar factory changes and improvements. Blueprint now and be ready.



**M & H GATE VALVES** are cast iron body, bronze mounted, with double-disc parallel seat or solid wedge top, non-rising stem or outside screw yoke. They come either with flanged or screwed connections. Valves for fire protection lines are marked "UA-FM" to denote approval of both the Underwriters and the Factory mutuals.

**M & H FIRE HYDRANTS** are revolving head, dry top, bronze mounted. They also are approved by "UA-FM". Entire main valve assembly is removable through barrel without digging. Special Traffic Model is fitted with breakable bolts and stem coupling, designed to break at ground line under impact. Repairs are made simply by renewing bolts and coupling, without shutting off the water.

**M & H PRODUCTS INCLUDE**

FIRE HYDRANTS  
GATE VALVES  
TAPPING VALVES  
WALL CASTINGS  
SPECIAL CASTINGS  
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CHECK VALVES  
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CUTTING-IN TEES

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ANNISTON, ALABAMA

# *There's a Great Day Coming*

The war has demonstrated to industry the value of strategic locations. When it is over there will be a demand for industrial sites offering adequate and efficient rail transportation.

The P. & N. Railway offers a highly geared transportation service which is now largely used by Carolina industry. Excellent industrial locations are available along its line.



## CAROLINA PERFORMANCE . . .

THE WAR RECORD OF INDUSTRY in the Piedmont Carolinas has attracted National attention. Conversion from peacetime products to war materials, meeting the exacting requirements of Army and Navy, and at the same time attaining unprecedented production goals have been dramatic aspects of this record.

We of the Duke Power Company are proud to share in this accomplishment. The millions of dollars invested in past years to anticipate increased demand helped make possible the smooth acceleration of industry in the area we serve. A highly trained organization, notwithstanding assignment of over 1,000 members to the Armed Services, has welcomed the challenge to do its part toward Victory.

## DUKE POWER COMPANY

# SHIPYARD RIVER TERMINAL CO.

## *Stevedores---Forwarding Agents*

### STORING AND HANDLING FERTILIZERS AND OTHER MATERIALS

Storage Capacity 100,000 Tons—Prompt and Efficient Service—Ocean Docks—Private Rail Connections with A. C. L., Seaboard and Southern Railroads

*Especial Attention Given to Warehousing and Forwarding of Fertilizers and Other Materials*

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Charleston, South Carolina

# GREENVILLE & NORTHERN RAILWAY CO.

TRUNK line freight and express rates maintained to and from all points in connection with all lines diverging from Greenville, South Carolina.

Through daily package car service.

Serves exclusively the textile plants of Renfrew Bleachery (Brandon Corporation) and S. Slater & Sons, Inc., Georgia Hardwood Lumber Co. (Lumber Manufacturers).

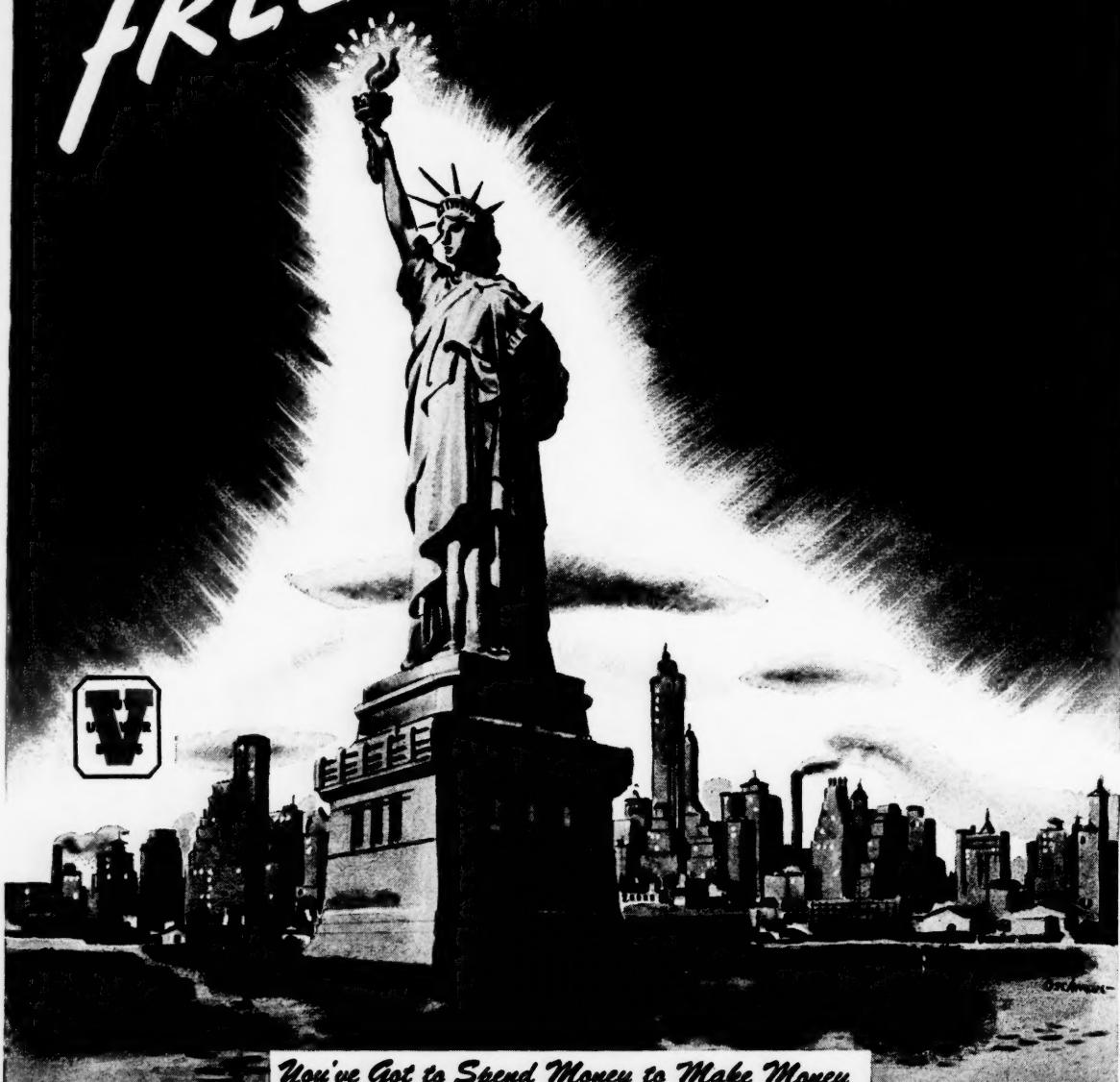
Many desirable sites available with ample supply of pure mountain water, low electric power rates and native labor.

Post war planning warrants investigation of this property for ideal and advantageous locations.

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*Vice-President and General Manager,  
Greenville, South Carolina*

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OFFICES IN PRINCIPAL CITIES



*"What Enriches the South Enriches the Nation"*

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## TWO BIRDS WITH ONE STONE

For months our political intelligentsia have preached to all of us through the press and by means of the radio that there is an acute man power shortage in this country. Different "brains" on the public payroll have proposed different schemes to correct this condition. Some even advocate a forced draft of labor and its allocation where and when the FÜEHRER through the decisions of his appointive servants directs.

Labor, because of its selfishness or the selfishness of its leaders has attracted national attention to a condition which in most industries, while it is acute, does not require an operation that will destroy one of the last of our democratic institutions.

The answer to the man power shortage, so called, is not in the number of men who work, but in the number of man hours that they work.

Our present laws encourage and tempt every man who works on an hourly basis in a plant that is working overtime to work two twelve hour days for which he is paid for two days at straight time and an additional day at time and one half—the equivalent of three and a half days' pay for two days' work. With the rate increases that this workman has received in the past four years, he finds himself in a position where he can live better on four days' work a week than he ever has lived before. Human beings are strange animals and temptation always tempts them. Temptations should be balanced by penalties.

Patriotic statesmen, business men and labor leaders should have constantly before them this problem of how to handle human nature.

The production problem is not one of man power. It is a problem of how to cure the personally

apathetic and nationally pathetic disease of ABSENTEEISM.

It is not considered politically polite to criticise unless that criticism is constructive, so let us consider for a moment another very serious aspect of the national problem, TAXES. For reasons unknown to the man who pays his bills and meets his obligations when they are due, our federal government has apparently evaded its financial responsibilities in a fashion that its own agencies would condemn and prosecute in any privately owned institution.

Now there is a way that two birds can be killed with one stone. Either federal income can be increased or absenteeism can be reduced. The killing of either one of the two birds will be in the interest of the national war economy. This way will have the wholehearted cooperation of every employer in the country. Here is the suggestion:

When a man working for hourly wages knows in advance the work week for which he is scheduled and is paid time and overtime by his employer for the hours or days that he works, then the employer should deduct from the wages that he has actually earned the amount he lost through absenteeism and turn that amount over to the government as a tax to compensate for failure to place national obligation before personal pleasure or convenience. Exceptions to the levying of this tax could be made when the reasons therefor were submitted under personal affidavit and accepted by the tax collecting authority.

Labor should not be conscripted. It should be made to realize that it is a national duty to work.



STATE OF SOUTH CAROLINA

OFFICE OF THE GOVERNOR

OLIN D. JOHNSTON  
GOVERNOR

COLUMBIA

EDWARD W. CANTWELL  
EXECUTIVE SECRETARY

April 5, 1944

Manufacturers Record  
Baltimore, Maryland

Gentlemen:

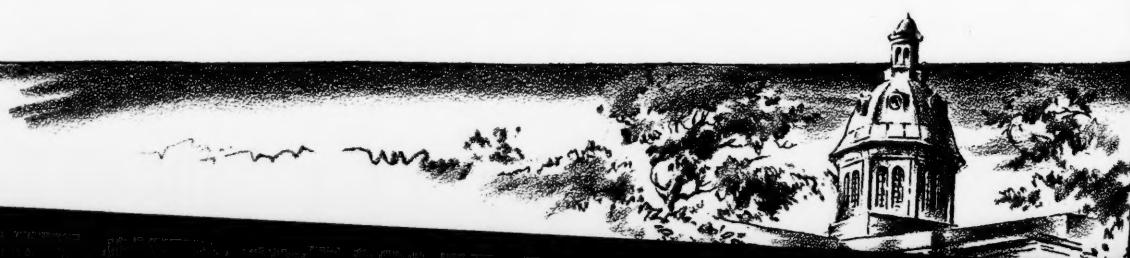
I wish to thank your splendid publication for this opportunity of placing before your readers some of the facts concerning the State of South Carolina. Owing to the high regard we have in our State for your publication, we consider it an honor to be allowed this space in your issue.

I am happy to say that throughout this period of War that our people have walked together in the spirit of unity and that we have had but one aim and that aim has been to put forth all of our efforts to complete and final victory for the Allied Nations. There has been no disunity in our State and we have realized fully the many sacrifices which our men and women in the armed forces are making for us at this time. We are looking forward to the day when they shall return to their native State and we are in a measure preparing and planning for their return to their homes.

In view of the return of our men and women we have made possible a Preparedness for Peace Commission, which is today laying plans for progress in the fields of industry, agriculture and taxation. I am happy to say that they will find the State of South Carolina in the most sound financial condition since the beginning of its history. We not only have met all of our outstanding obligations, but we have a surplus in our Treasury. With this surplus we have purchased millions of dollars worth of War Bonds, thereby helping the War effort and in a small way helping our State through the accrued interest on these Bonds.

South Carolina, for the first time in its history, does not have any property tax. As far as the State is concerned, a man's home is his "Castle" and his property will not be levied against by the State.

In the Post-War period, which we trust will soon follow, we will expand our Highway System, which will compete with any State in the Union. At the present time we are building up a surplus fund to match Federal funds for highway expansion and as proud as we are today of our highways, we will have further reason to be proud when this road building expansion takes place, which will not only improve our roads but will give employment to thousands of our returning service men.





STATE OF SOUTH CAROLINA

OFFICE OF THE GOVERNOR

OLIN D. JOHNSTON  
GOVERNOR

COLUMBIA

EDWARD W. CANTWELL  
EXECUTIVE SECRETARY

- 2 -

South Carolina was one of the first States in the Union to pass legislation setting up an Aeronautics Commission. We are fully aware of the great possibilities that face us in the future in the field of aviation, and because of the many improvements made in this field during the War we expect South Carolina to expand with the Nation and to make it possible for transportation by air not only for passengers but for freight service likewise.

In the field of agriculture we have developed our farming. Not only do we grow cotton and tobacco in abundance but we in our State have gone into the truck-farming phase of agriculture and through aviation we expect many of our products to be carried quickly to the Northern and Western markets.

We have developed our dairies in South Carolina. We have extended our livestock program to include the raising of cattle, sheep, hogs and poultry.

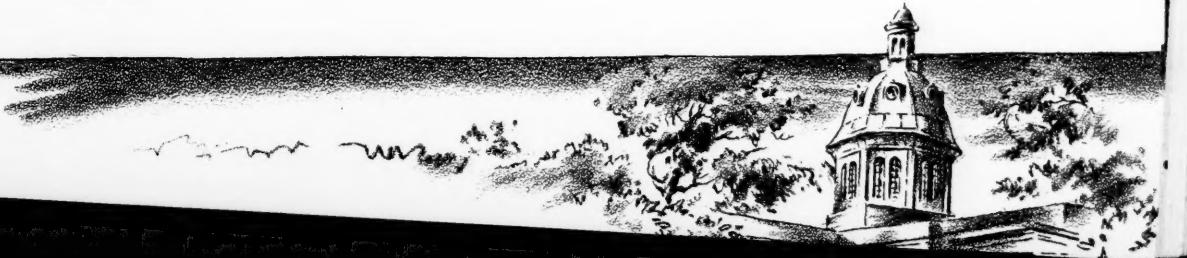
Through the development of the Santee-Cooper project we have in South Carolina with the other power projects, a surplus of hydro-electric power, which is sufficient to take care of any new industries that might come into our State, and right here I wish to say that we are most happy to invite into our midst any new industries that might seek development in our section of the country.

I must not close without mentioning that Charleston, South Carolina, possesses one of the finest harbors in the world. The port of Charleston, if given opportunity of development, can and should become one of the most powerful ports in the world. Great opportunities for industrial progress lies in this section of our State. We are looking forward to a great era of prosperity at the close of this War. We will maintain the historic and high traditions for which our State has stood in the past and we welcome any American to visit us and we feel sure that we shall make their welcome so hospitable that they will want to share with us our citizenship.

Sincerely yours,

A handwritten signature in cursive ink, appearing to read "Olin D. Johnston".  
Olin D. Johnston  
Governor

ODJ:im





STATE OF SOUTH CAROLINA

THE SENATE

COLUMBIA

EDGAR A. BROWN  
PRESIDENT PRO TEMPORE

HOME ADDRESS:  
BARNWELL

May 1, 1944

R.  
SENATE  
HOME  
WA

An Open Letter to  
American Industrial Executives:

South Carolina offers unbounded opportunities for industry in the post-war period.

Its vast natural resources are unspoiled by over-development.

In the South Carolina lowlands and the rolling hills of the Piedmont section are expansive areas that are ideal for every type of manufacture. Rich agricultural lands are an additional attraction to the man who likes to see things grow. Our forests, our rivers, our mountains and our beaches are paradise for the sportsman.

Intelligent native-born labor has not been exploited by labor racketeers.

Access to the large consuming markets of the North and the ports of Europe and Latin America is provided by three national railway systems, three fine ports and the finest system of highways in the United States.

An unlimited supply of water, a tremendously increased supply of power at low rates and a mild climate both in summer and winter, are additional attractions.

And today, under the leadership of its progressive citizenry, a friendly attitude prevails toward industry.

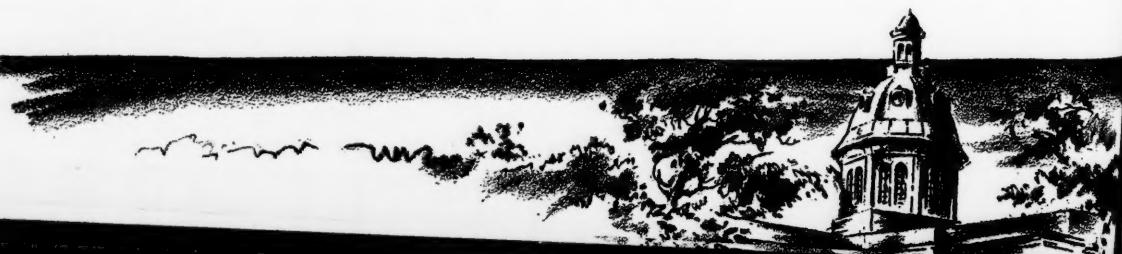
Proof of the constructive policies of the General Assembly is the fact that no new obnoxious laws have been passed at any session during the past several years. Laws that have been objectional have been repealed.

The ten-year period following World War II will see greater industrial development in South Carolina than the past fifty years. It gives me pleasure to invite you to locate here. You will find it pleasant and profitable.

Cordially yours,

EDGAR A. BROWN  
Chairman, Finance Committee

B/b



The Senate  
State of South Carolina

R. M. JEFFERIES  
SENATOR, COLLETON COUNTY

**HOME ADDRESS:**  
WALTERBORO, S. C.



Columbia

March 31, 1944

### **COMMITTEES:**

**AGRICULTURE  
BANKING AND INSURANCE  
EDUCATION  
ENROLLED ACTS  
FINANCE  
FISH, GAME AND FORESTRY  
MILITARY  
NATURAL RESOURCES  
PENITENTIARY  
RULES  
SOCIAL SECURITY  
TRANSPORTATION**

Manufacturers Record  
Baltimore, Maryland.

Gentlemen:

Gentlemen:

It is gratifying to learn that the Manufacturers Record in cooperation with South Carolina business leaders has completed an extensive industrial survey which you will publish soon in an edition devoted to this State.

There never has been a time in the 17 years during which I have been connected with the State Government that seemed more opportune to call the attention of the nation's business leaders to the advantages that this State has to offer for industry. Its vast natural resources,

With its equitable climate, its vast natural resources, ample supply of native-born labor, proximity to both domestic and foreign markets, fair and non-oppressive tax rate, a cooperative Legislature and without state governmental interference, South Carolina can meet every requisite for industrial expansion.

There are forceful agencies at work in this State today designed to take advantage of the opportunities that are before us in securing new industries. Our ultimate aim must be a balanced prosperity, with approximately a third of our endeavors devoted to a more intelligent, advanced agriculture; a third given to scientific, profitable forestry; and a third given to industrial, professional and business pursuits.

Knowing the wide influence of Manufacturers Record among industrial and financial leaders of the country at large, I feel that your cooperation can be of great assistance to us in hastening this accomplishment.

Please feel assured of my personal appreciation of the tremendous amount of effort you have expended in assembling this factual data and for its presentation to the people of the nation.

Sincerely yours,

*B. M. Jefferies*  
B. M. Jefferies.



# SOUTH CAROLINA

(*An Editorial Introduction*)

South Carolina is truly a State of opportunity, but we like to think of it as the beautiful state, beautiful in the historic glories of its past, in its geographic splendor, but most of all in the beauty of the graciousness and friendliness of its citizens and of the individual American characteristics that they display. This is an object lesson to all Americans who love their Country.

No one can read the history of South Carolina from the landing of the Huguenots and the permanent settlement by the English to the present day, without a thrill of pride that he is a part of a Nation that South Carolina has helped to make great.

No one can visit South Carolina, from her magnificent mountains to her coastal plain, where are found great harbors, historic churches, homes, gardens and luxuriant growth of great natural beauty, without feeling the urge of the invitation to remain.

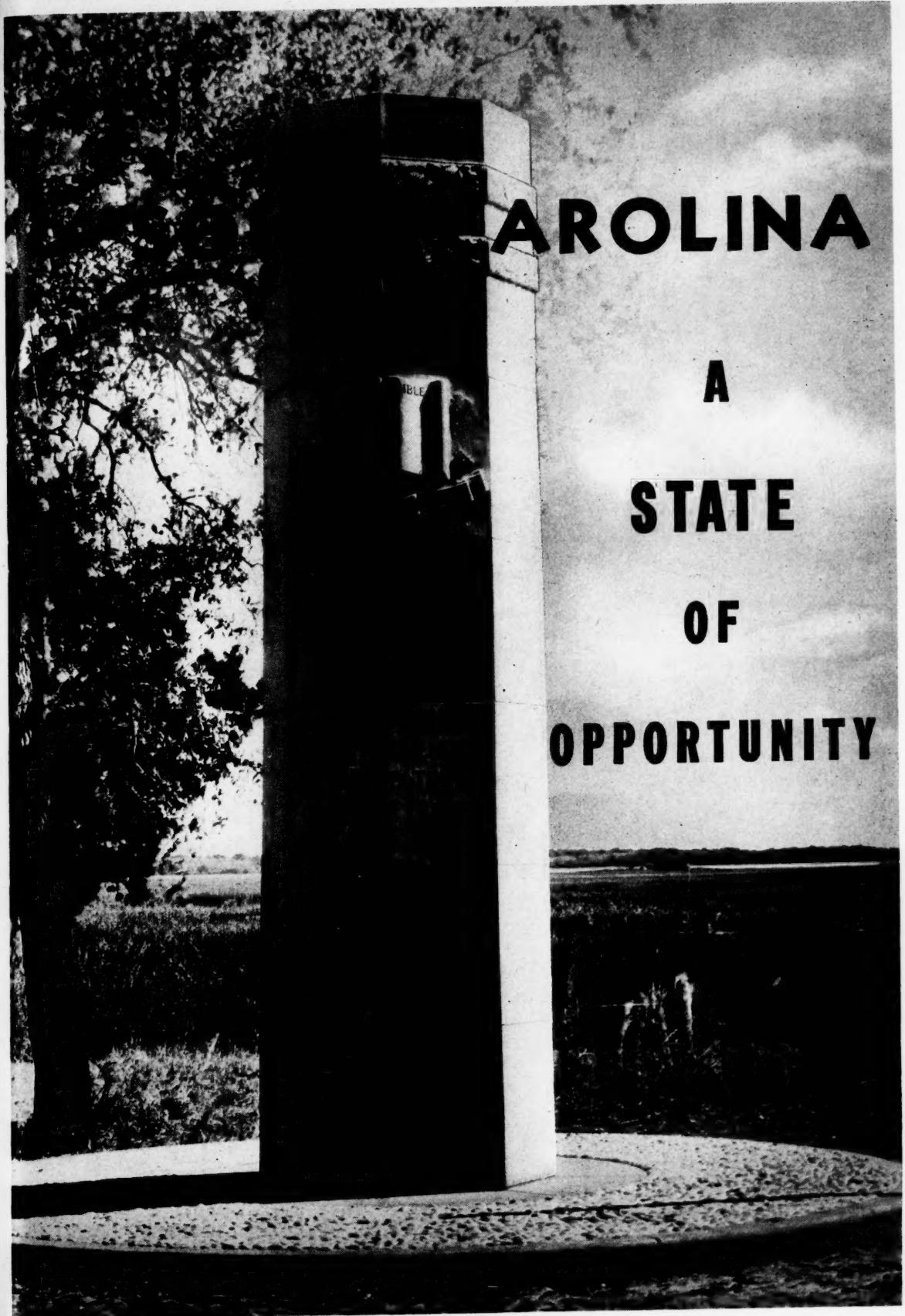
South Carolina, situated as it is between neighboring states, both north and south, with an area greater than it has, is often thought of as a small state. It should be borne in mind, however, that it is not a small state, that its area is in excess of 31,000 square miles and that all of the New England states, with the exception of Maine, have only an area slightly in excess of 33,000 square miles.

No one can travel anywhere in South Carolina where pleasant sights and comfortable farms do not meet his view. South Carolina is a state that cannot help but be loved by everyone who comes within its borders.

The citizens of South Carolina are really Americans. Most of them have generations and many of them centuries of American families behind them. Such people, with the background that they have, help to form the nucleus from which our national way of life has expanded and will continue to expand.

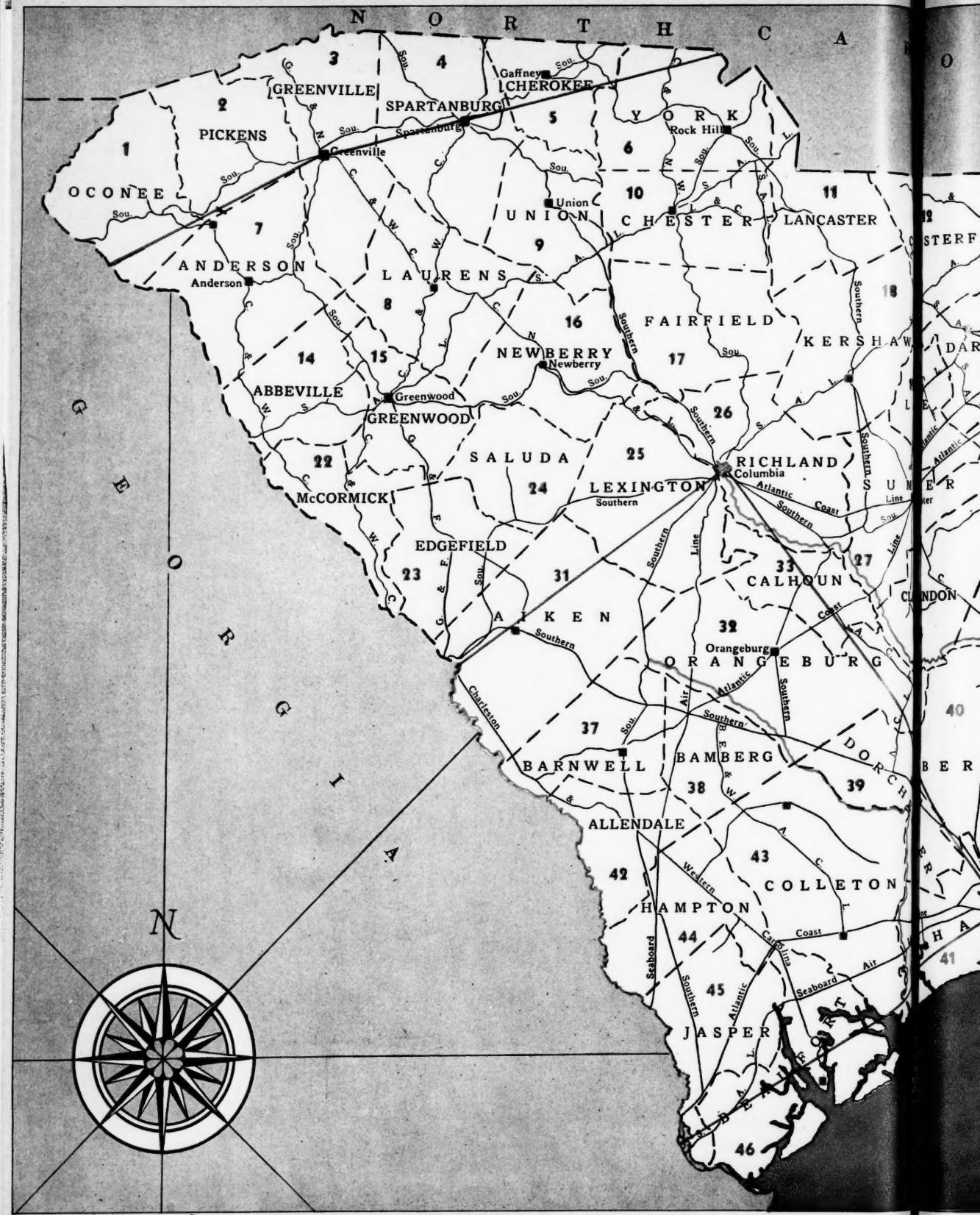
South Carolinians have shown the independence of their spirit and the character of their convictions many times in our history. In addition to the invaluable part they played with citizens of the other colonies during the Revolutionary War, they believed that they were right when they set the spark that exploded into the War Between the States.

South Carolina is, indeed, a State of free-minded, self-respecting men and women. It is, indeed, a beautiful state, historically and geographically, but more than all of these, it is beautiful because within its boundaries it has people of integrity and of vision who unselfishly work for its greatness.



FOR

XUM



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# SOUTH CAROLINA



E. MORRELL

Its principal raw materials and transportation facilities, with facts on the reverse side pertain to its industrial growth and opportunities for industry.

**Mineral** Counties in which mineral is commercially produced

**Barite**—5

**Clay (brick and tile)**—25, 26, 27, 39

**Gold**—5, 6, 11, 12, 14, 22

**Granite (crushed)**—3, 4, 8, 16, 17, 18, 23  
25, 26

**Kaolin (sedimentary)**—25, 26, 31

**Limestone**—5, 32, 33

**Mica**—11

**Sand and gravel**—2, 11, 12, 13, 25, 26  
31, 41, 43

**Tin**—5

**Vermiculite**—3

A small amount of silver is obtained as a by-product in the smelting of other ores.

#### Timber

**Bottomland hardwoods**—12, 13, 18, 20  
21, 26, 28 to 30, 32, 34 to 36, 38 to  
41, 43 to 45

**Loblolly pine—hardwoods**—8, 9, 10, 12  
13, 15 to 34, 36 to 45

**Longleaf pine**—11, 12, 18, 19, 20, 25, 26  
27, 30, 31, 33 to 45

**Mountain hardwoods**—2

**Shortleaf pine—hardwoods**—1 to 12, 14  
15, 17, 18, 22

**Virginia pine—hardwoods**—2, 3, 4

**Naval stores**—12, 18, 25, 26, 28, 31, 32  
34, 36 to 40, 42 to 46

**Commercial fisheries**—30, 36, 41, 43, 44

#### Agricultural products

**Corn**—all counties

**Cotton**—all counties

**Peanuts**—7, 8, 11, 13, 16 to 19, 21, 23 to  
26, 28 to 33, 36 to 46

**Soy beans**—all counties

**Sugar cane**—19 to 46

**Sweetpotatoes**—all counties

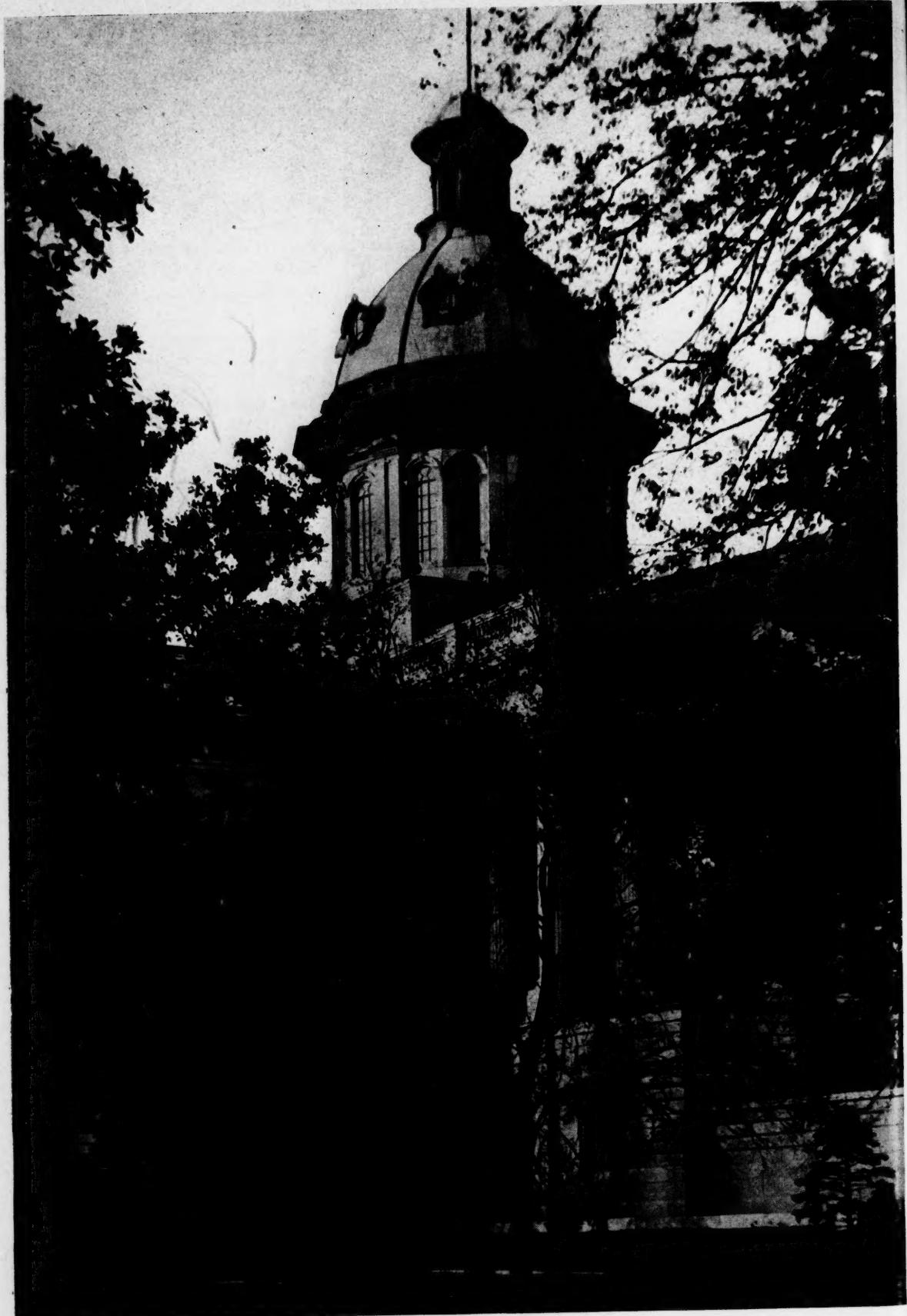
**Tobacco**—12, 18 to 21, 27 to 30, 32, 34 to  
36, 38 to 40, 43, 46

— Railroads

— Navigable Rivers

— Airlines

■ Airports—also at principal cities printed in red



*South Carolina State Capitol*

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# SOUTH CAROLINA

## *A State of Opportunity*

The earliest recorded arrival of the white man in South Carolina occurred in 1521 with a Spanish expedition from the Caribbean Island of Hispaniola, which landed at the mouth of Winyah Bay—near the present town of Georgetown—for the purpose of capturing some Indian slaves for use on their new plantations. So the first of the slaves that were later to bring dissension, and finally war, were taken out of the country—the process to be later reversed from Africa.

In 1540 De Soto passed through what is now Aiken County on his march from Florida to the Mississippi River. In 1561 Villafane touched at the Carolina coast and claimed the territory for Spain. In May 1562, Jean Ribaut entered Port Royal Sound and established the first white settlement with 150 French Huguenots who accompanied him. He erected a fort and named it "Charlesforte" on the island now known as Parris Island—a present Southern home of the Marine Corps. This settlement being a failure, the survivors departed. In 1566 the Spanish took over and built a fort two miles below the former one and

named it "Fort San Felipe." Starvation and Indian troubles forced its abandonment. In 1577 the Spanish built another fort near the old site and named it "San Marcos." It too was abandoned ten years later.

The first settlement to endure was that made at Charles Town by the English under a charter granted by Charles II. In April of 1670 a group of 140 settlers established a town site on the west bank of the Ashley River. In 1680 the town was moved to its present location on the peninsula between the Cooper and Ashley rivers. The colony flourished and Charleston in time became a center of wealth and culture.

South Carolina was the first colony to adopt a provisional constitution in 1776; the eighth state to come into the Union in 1788 and the first state to secede from the Union in 1860. The state led the van in other fields as well; it was the first to plant rice and indigo about 1671; the first tea farm was planted at Summerville; the cultivation of silk was attempted about the same time near Charleston but without success; the first landscaped gardens in America



Fort Hill, the John C. Calhoun Mansion

were the Middleton Gardens, still famous for their beauty; the first free library in America was established in Charleston in 1695; the first public museum in America was organized in Charleston in 1773; the first municipal college in America was the College of Charleston, chartered in 1785, and still going strong under the same name and ownership; the first free schools for Negroes were founded in Charleston about 1740. South Carolina's statesmen were foremost in making and establishing the Republic

and in its later development into a great nation.

South Carolina is called the Palmetto State; its state flag is a white palmetto tree on a navy blue field with a white crescent in the upper left hand corner, its points facing the staff and upward; the state flower is the Yellow Jasmine, the state tree the Palmetto Palm; the seal of the state bears in Latin on one face the phrase which translated is "Ready with Minds and Resources" and on the other face "While I Breathe, I Hope." The mocking bird has been officially designated the State Bird.

### South Carolina "The Comfortable State"

In 1927 Dr. W. W. Ball, the editor of the *Charleston News and Courier*, working with Clemson College and the Department of Agriculture and Industries, wrote the story of the state. He called it "The Comfortable State" and described it in two opening paragraphs as follows:

"South Carolina is a comfortable state in which to live and earn a living. If anything has held back its progress, it has been the ease with which the average man could take care of himself and his family, with never a danger of suffering from want or cold." . . . "Factory, farm and home may thrive together in South Carolina under one ownership, for land and power may be had together by any man at a low cost. Living is comfortable and progress sure for every



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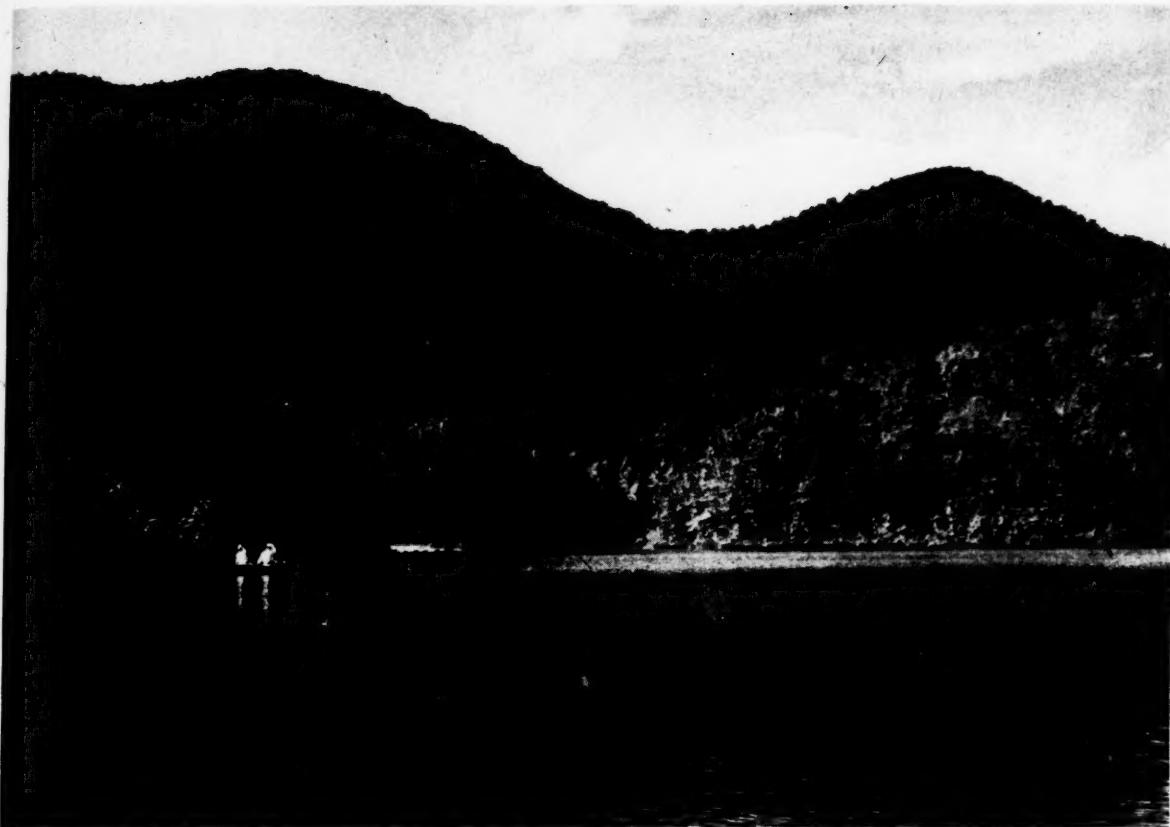


Table Rock Lake

man diligent, sensible and ambitious."

As one journeys across the state, from the mountains to the sea, one realizes readily enough why Dr. Ball called it the comfortable state. It has the aspect of comfort and contentment. The gently rolling hills splashed with patches of forest and cultivated fields, are green and gold and brown; they slope gradually from the foothills of the Blue Ridge Mountains, down across the Piedmont Plateau, then through the winding folds of the Sand Hills where they drop into the Coastal Plain, which then stretches away flatly to the Coastal Terraces and on to the sea islands and the Atlantic Ocean. The upper reaches of the state touch the mountains themselves, where, at cool high spots like Ceasar's Head, 3218 feet above sea level, summer resorts are numerous. Residents of the State also have their seashore places and this does not mean a few developed spas. It means cabins under sunny skies and in forest glades; fishing camps, family gathering places in the out-of-doors, along the myriad strands of the sea shore; by marsh and river bank and island hide-a-way among the moss festooned giant oaks that seem to love the waterways near the sea. They can be found everywhere throughout the state wherever the waters and warm winds, with the summer sky, combine to create a summer paradise. If there should be any skeptics they might inquire why the old plantations have been eagerly bought up by people from other states who have been around and who know what they are doing.

When winter comes the scene changes but not the contacts with the out-of-doors. Then comes the Channel Bass fishing off Winyah Bay; deep sea fishing off the Black Fish Banks; smaller fry fishing in the rivers and the bright, crisp days for hunting quail, turkey, deer and whatever else raises an excuse to get out into the brown fields and the open woods with the invigorating odor of the pine needles and rosin.

Before this war it was the philosophy of the favored ones never to allow business to interfere with a good fishing or hunting trip, a sail down the bay or a motor boat jaunt among the waterways. Perhaps the time will come again to relax under the spell of South Carolina's sky.

### Geography and Climate

South Carolina is not a large state. It is triangular in shape and has an area of 30,945 square miles. This is 19,516,800 acres of which 55 percent is in forest and about 5 million acres, cultivated crops. The Coastal Terraces rise in elevation from sea level to about 270 feet above; the upper Coastal Plain extends to the Fall Line or Sand Hills and rises to about 400 feet; the Piedmont Plateau extends from the Sand Hills to the foothills of the Blue Ridge Mountains and rises gradually to an elevation of 1,200 to 1,500 feet above sea level.

For the past thirty years of record the summer temperature has been 79.6 degrees and the average



Myrtle Beach

winter temperature 47.7 degrees, for the state as a whole. The average rainfall is 58 inches and the mean temperature is 63 degrees. The average growing

season is 200 days in the upper Piedmont and 280 days on the Coast, which is a decided agricultural advantage and conducive to rapid reforestation.

## South Carolina - Manufacturing

South Carolina has made great strides in industrialization in the last decade and the future looks even brighter. In 1943 the state, for the first time, got into the billion dollar column with its value of manufactured products, and this is exclusive of government construction contracts. The totals are \$1,062,000,000 for the industries other than shipbuilding and \$751,000,000 for the latter—a grand total of \$1,813,000,000.

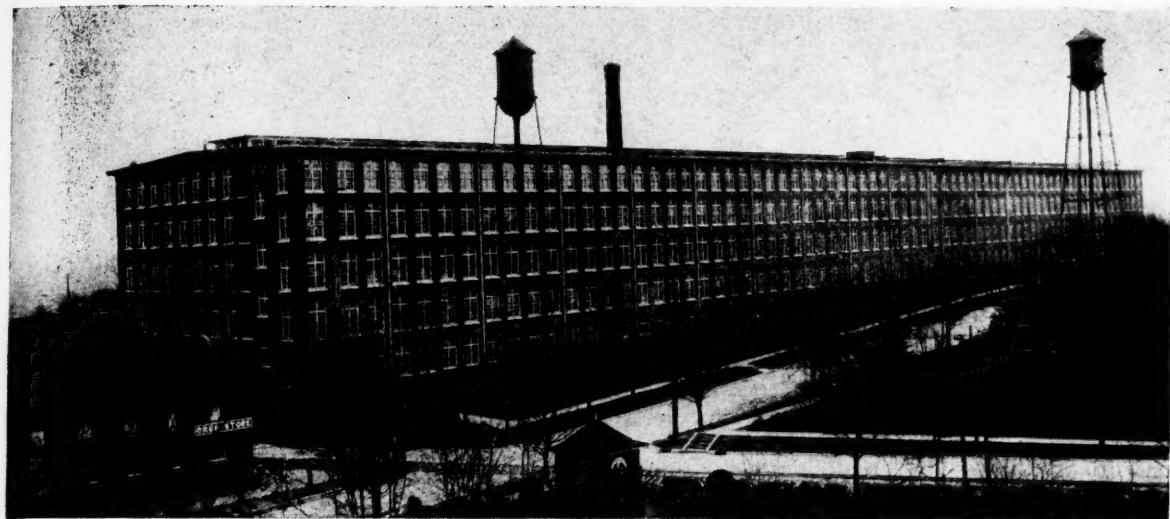
Products manufactured in the state under war contracts comprised sixty different classes of textile products, such as duck cloth, sheeting, twill, netting, webbing, rayon, bandages, bandoleers, balloon cloth, wool socks, khaki suiting, and many others; twenty types of forest products such as plywoods, ammunition boxes, crates, fabricated houses, gas mask boxes, and others; fourteen classes of steel and iron ranging from war vessels to anti-aircraft gearing, rails and stanchions, tugs and boats, jib cranes, etc.; several chemical products, such as explosives, dry tetryl,

and others, including paper products and dehydrated foods.

176,260 persons are employed in 1379 manufacturing establishments, of which 228 are textile plants. Since 1923, a total of 1169 industries have started business in the state.

### Textiles

In the number of active spindle hours worked, the state takes top rank among all others. Only one other state has as many cotton mill spindles. South Carolina mills consume three times as much cotton as is grown in the state. The mills are working full time to do their part in the war effort, turning out all kinds of cotton textiles and cotton, rayon and wool combinations for the services. Value of textiles produced reached an all-time high in 1943 of \$805,800,000, and, while war contracts accounted for an



Large Cotton Mill at Greenville

important part, it was accomplished by practically the same mills that operated previously to the war. While the number of spindles is approximately the same, there has been a vast increase in output and almost twice the amount of cotton was consumed in 1943 as compared with 1936. Improvements and enlargements made possible the difference, and with it all reconversion problems will be small when they revert to peace-time business.

### Opportunities in Textiles

The smaller textile industries which process many of the products of the other mills are beginning to find it profitable to locate near their raw material supplies, and some of the forward-looking ones which manufacture men's clothing, ladies' specialties, gloves, hose, fabrics for tires, upholstery, and similar articles, are locating branch plants in this state or are moving into the state to favored locations. There is an apparent desire to get into the smaller towns where the employees can enjoy the advantages of country life. In addition to industries that are moving into the state, there is an increasing tendency for local capital to organize consumer industries as the advantage of local manufacture is brought to their attention. Additions and some new industries in bleaching, finishing and dyeing have been added recently and investigations are under way for the establishment of more of the same type.

The woolen industry is also looking south. Several modern woolen mills have been built in the southern states in the last few years and South Carolina has obtained two of the most modern type and prospects are bright for more of them following the ending of the war.

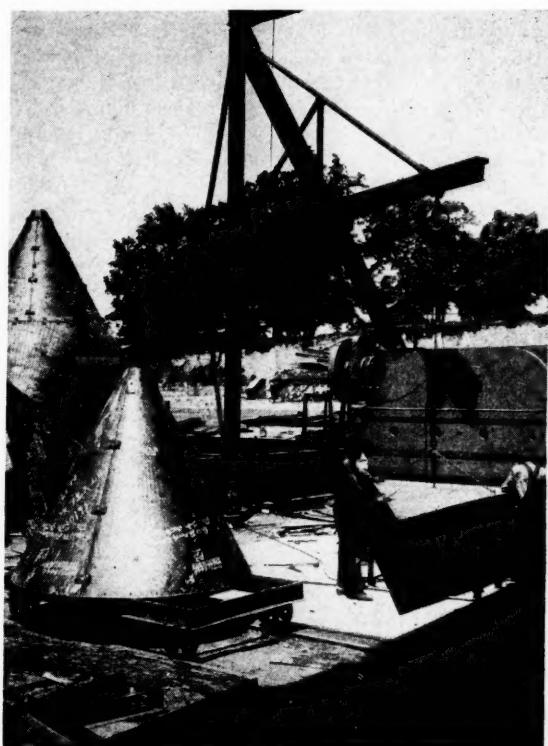
A large rayon cord tire plant is now under construction and one or two other existing plants are being converted to that product.

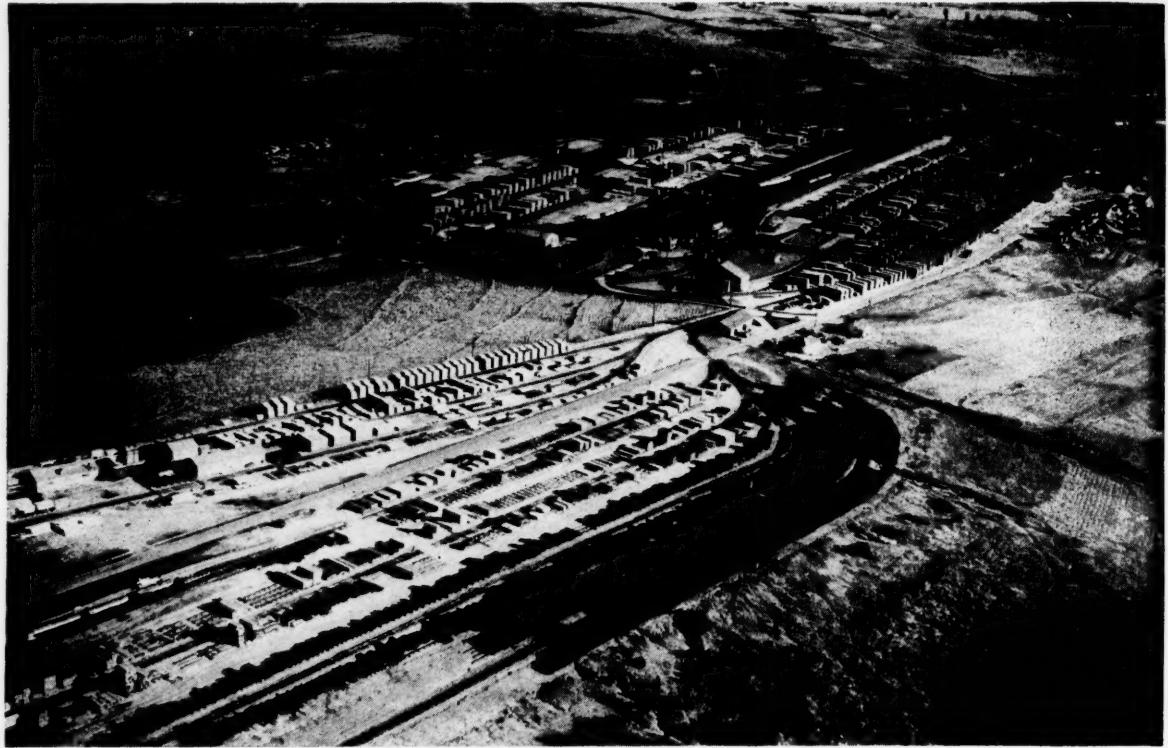
An active textile industry means satellite industries, such as textile supplies and machinery. These collateral industries show as great a percentage increase of gain as do textiles themselves.

### Food Products Go to War

This now ranks second in size to textiles measured by value of products. It has more than doubled since 1939, and shows large increases in meat packing, bakeries, soft drinks, confections and canneries. In 1939 meat packing was not carried separately in the department records, but almost \$17,000,000 worth of meat products were shipped into the state. In 1943 the local meat packing industry produced over

Steel Fabrication in South Carolina





A South Carolina Wood Treating Plant

\$8,000,000 worth of products. Accompanying it, there has been a marked increase in livestock on the farms, and with cold storage locker plants being built throughout the state, the meat packing industry presents a definitely inviting prospect.

Food canning has doubled in the last four years, and seafood canning took a long forward step when a successful process was developed for canning crabs. Four dehydration plants were placed in operation in 1943. They are encouraging the quantity production of sweet potatoes, for reasons stated elsewhere, and because it is a crop that is peculiarly adaptable to successful dehydration. Irish potatoes and cabbage are also being dehydrated in large quantities.

The preparation of food products from the farms and waters of the state by canning, quick-freezing, cold storage lockers and dehydration is occupying the attention of more and more people.

### Forest Products

Next to the products of the farm, it is the products of the forest that are regarded as the source of base materials which will contribute to participation in a large share of the new chemical world that lies ahead. Forest products in the form of lumber and naval stores constituted one of Carolina's first chief exports, and its lumber industry reached a high point in the early years of this century.

As the supply of lumber in its original form has declined, the need for the utilization of this valuable natural product in other forms increased. The chemical industry met that need by discovering methods

for its conversion into other chemical forms and such a conversion and utilization is only now emerging over the horizon in the south with its promise of great enterprises.

Pulp and paper mills have come to the south in the last few years and a broad market for forest material has been built up with these mills located in the state and nearby. The plywood industry with the recently developed plastic glues, which have revolutionized it, has become a giant competitor of the light weight metals and of steel. In South Carolina plywoods do not compete with pine timber industries, pulp and paper mills or plastics for the type of forest products it uses as its raw material. This state is favored over other states in the amount of its available supply of red gum which is classed as one of the two most desirable species of wood for the production of plywoods to be used in the finer grades of furniture and interior decoration. The next in importance to the red gum is the black gum and the red oak and, happily for this industry in the state, these two species follow the red gum in the amount available among the various hardwoods. Several profitable plywood plants have been built in the state and are participants in the enormous military demand. The annual production has increased greatly and with the new uses for the improved plywoods that have been discovered recently, progress in this industry should continue steadily when peace returns.

A new day has dawned for the cut-over hardwood lands. The cellulose base plastics are beginning to emerge as a great industry and the field is wide. Material for plastics not only includes small timber

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left by lumbermen who have gone before and thought only in terms of board feet, but includes also wood waste, sawmill slabs, sawdust and even tree-tops. There is a future here beyond a doubt. Two new plastics plants which will use this kind of raw material are now being planned and will be built as soon as materials are available.

The extent of the expansion of what may be termed the forest products industry may be gleaned from the fact that under this classification there were produced during the past year products of the value of \$50,000,000.00, an increase of 81% in four years, and these figures are arrived at after excluding the wood supplied to the pulp and paper industry. Incidentally, but importantly, the value of pulp and paper products jumped in the same period from \$10,000,000.00 to \$27,000,000.00, an advance of 168%. South Carolina is counting on its forest products and with reason.

### Chemical Industry—A New World of Opportunity

Heretofore, the industry classified by the department which maintains their statistics in the state, has included under this heading cottonseed oil products, fertilizers, paints and varnish and medicinal chemicals. Both cottonseed oil and fertilizers show large increases over the last four years and the newer forms of chemicals and chemical industries are beginning to show increases which indicate that it will not be long before these newer types take an important place. These newer small chemical industries are now turning out substitutes for critical materials, to take the place of rubber, metal, and glue, wood and many others. Plastic processing plants are being established to manufacture all types of articles using not alone the cellulose base materials, but the other types of phenolic and petroleum base powders which are shipped into the state for this processing in the final form. As an indication of the growth of this latest type of chemical industry, the figures show that in dollars and cents, products have multiplied fourteen times in four years. It represents the nucleus of a number of chemical industries, of the types described above, that are leading the way in the state, some of which will undoubtedly evolve into

the important industries of the next generation.

They are now doing things with the old-time staple, cotton, that were undreamed of only three or four years ago; cottonseed oil products, now sold in the form of oil, meal, oil-cake, hulls and linters, are now beginning to be further processed into other chemical forms such as plastics. They are taking the cotton-stalk and bolls and converting them into alpha cellulose, to say nothing of the new uses that are being found for cotton fibre.

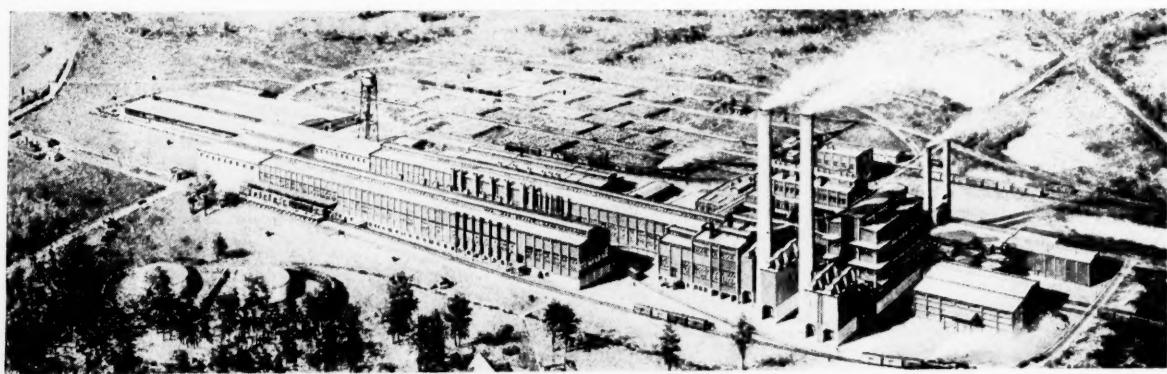
Among the larger chemical industries that are underway, may be mentioned an alumina plant from which the ore is to be produced from alumina bearing clays and limestones, all located within the state; the availability of large quantities of electric power combined with the limestones that are present, has brought about detailed investigations for the location of one or more chlorine-alkali plants. The advent of war hostilities temporarily suspended plans that were underway toward the consummation of this very important chemical industry; likewise, plans for a cement plant have progressed to a point which awaits only the securing of priorities. The raw materials have been located and surveyed and the site of a plant determined upon and this industry needs only the authority to purchase the necessary equipment.

It has been found practicable and profitable to locate a metallurgical plant in the state, the first to be situated on the South Atlantic Coast and this plant uses several essential materials mined or manufactured within the state.

There is a steady year by year gain in products from mineral sources, some of which are converted, and more of which can be converted, into various chemical forms. Glass, for instance, has been successfully manufactured in the state for many years and recent newly discovered deposits of silica sand have been found entirely suitable for various forms of chemicals, including glass of different forms, abrasives, metallurgy and others. Excellent refractory clays have been developed from which a promising refractory industry is in the making. Manufactured products from stone clay and glass raw materials totalled \$8,500,000.00 in 1943 and the total is growing each year.

Chemical research in the field for the utilization of phosphates is underway which, combined with the

Huge Paper Mill



electric power now available, is making it practicable to utilize the phosphate deposits which lie along the coast and this promises to develop into one of the profitable chemical industries.

The field of ceramics constitutes an entire galaxy of the chemical utilization of clays, sands, and other minerals located here. At this time the first substantial deposits of sillimanite are being proved for the production of a high grade of ceramics and several other branches of the ceramic industries are being explored and some of them now constitute a portion of the fast growing chemical industry.

The chemical industry that is developing in South Carolina is based upon certain fundamentals. The coastal plain section is underlain with vast deposits of limestones and marls. The upper section of the state contains many types of minerals. Taking these

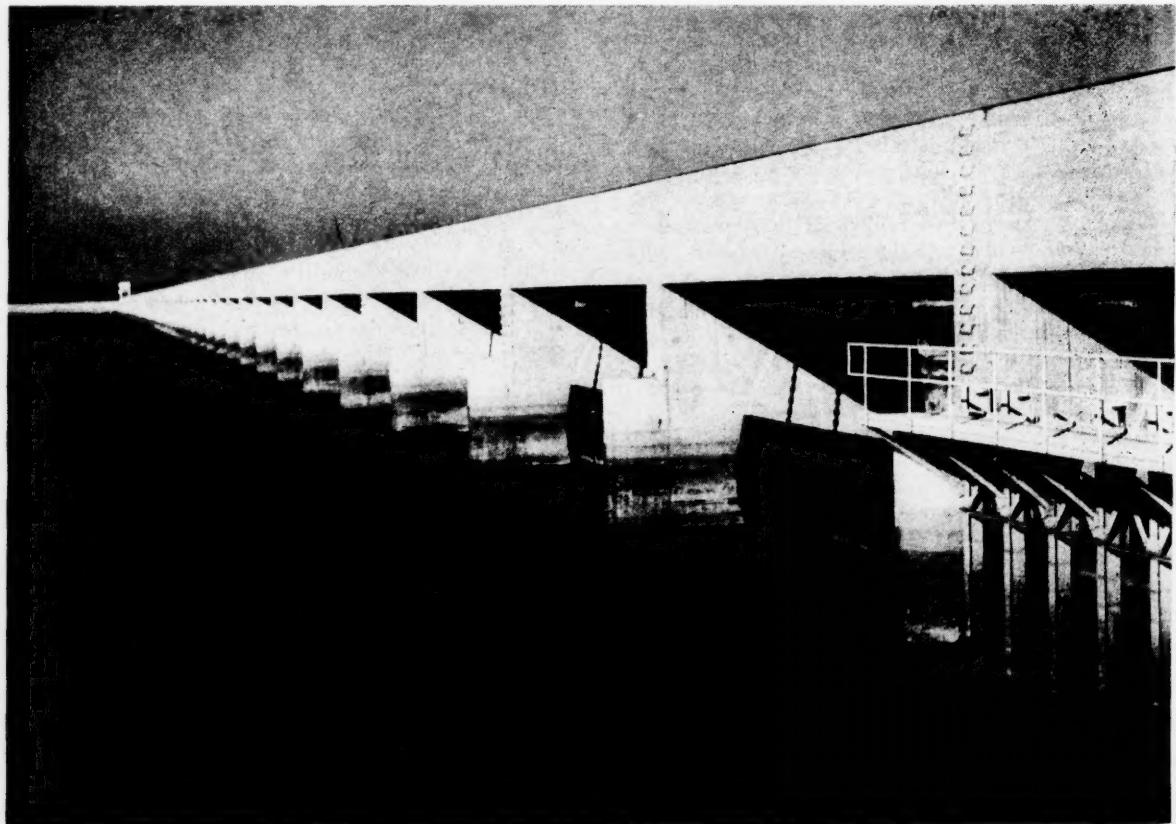
with the large cellulose resources of the forests and the farms, and with abundant electrical power which can be further developed as needed, there is unquestionably a bright outlook. There have been brought into the state 100,000 skilled workers to build ships and engage in other war industries. War veterans, who upon their return will seek jobs will probably number from 200,000 to 250,000, so that the labor supply not only for chemical industries but for a great number of other projects that are to be undertaken after the close of hostilities will prove ample. It is confidently expected that a large proportion of the people who came into the state to work on war projects will settle permanently, so that the background of opportunity's picture is being painted, while everything indicates it will be completed rapidly as circumstances permit.

## South Carolina - Power

An abundance of electric power that is priced within the economic range of industries that need it in quantity is one of the first requisites in attracting such plants, and South Carolina is meeting that need with the development of its water power. The first hydro-electric plant in the state dates from 1897, and about 1905 electric development began in earnest

with the harnessing of a score of rivers and streams in the Piedmont area. Later, the large Lake Murray power development near Columbia was added, and incidentally all of this privately owned power is, and has been, wholesaled to other utilities. Another addition was added by another private utility which also built a large steam plant and so it grew with

Hydroelectric Dam



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several private utilities each serving its segment of the state, four main segments in all.

In 1934, the South Carolina Public Service Authority was created by the State Legislature. The Authority negotiated a loan and grant from the federal government to dam the Santee River, divert its flow into the Cooper River and create thereby another large block of electric power, and at the same time provide a navigable waterway from Charleston to Columbia.

This large project was completed, and the first of its power was made available early in 1942, in time to help meet the great increase called for from public and private sources for war industries throughout the state. All of the power of this Authority is wholesaled, some to government controlled war industries and the remainder to help meet the load of adjacent private power companies.

### Installed Generating Capacity

Of the total of 808,000 kilowatts of installed generating capacity in the state, 82.5 per cent is hydro, and 17 per cent steam. In 1942, a total of 2,451,157,000 kilowatt hours were generated, of which 1,852,539,000 were furnished by private utilities, and 598,618,000 by public utilities. However, the full capacity of the Santee-Cooper was not in service during the entire year and the total of 511,331,000 kilowatt hours furnished by it in 1942 increased to more nearly its capacity of 700,000,000 kilowatt hours in 1943.

As to undeveloped power, projects approved and made ready for construction, but held up awaiting the time when materials will be available, total an addition of 345,000 kilowatts, of which 200,000 will be hydro.

Beyond these projects, other combined power developments and river improvements for which plans are ready but which await approval after the war, call for a number of dams in the upper state that will cost approximately \$135,000,000, and which will provide another 500,000 kilowatts.

The Pee Dee, Santee and Savannah River basins all contain potential undeveloped power that will be put to the service of industry as it is needed. Proposals are already under way to set up a State Authority on River Improvements which will work with other state agencies to round out the development of rivers, power and ports.

### Steam Plants

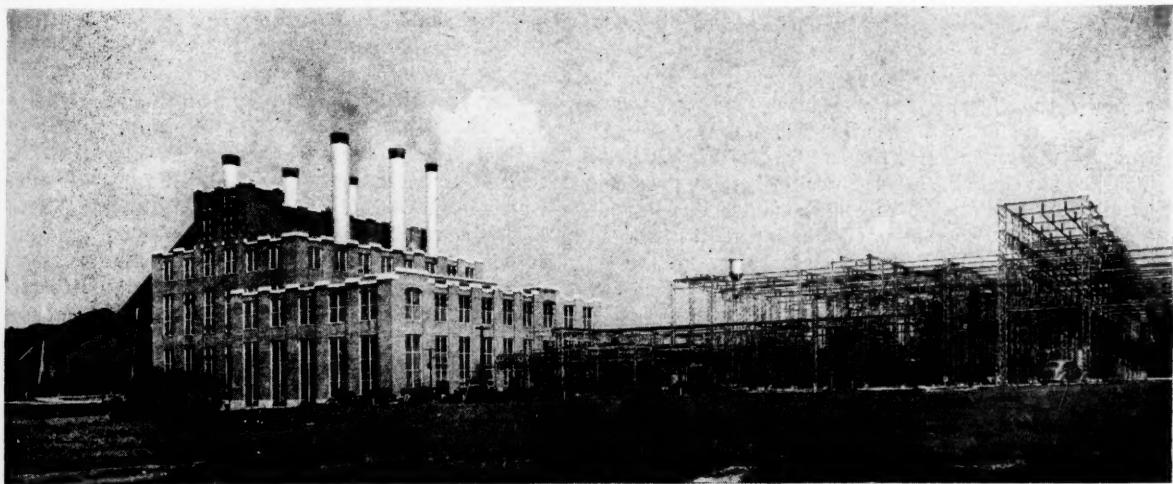
The coal fields of Tennessee are no further from the coast of South Carolina than Norfolk on the Eastern Seaboard from the coal fields in the same mountain range farther north, and from the Piedmont the distance is considerably less. With three railroads directly connecting, coal can be furnished in quantity for increased steam generation when power from nearby waters has been taken up and put to use.

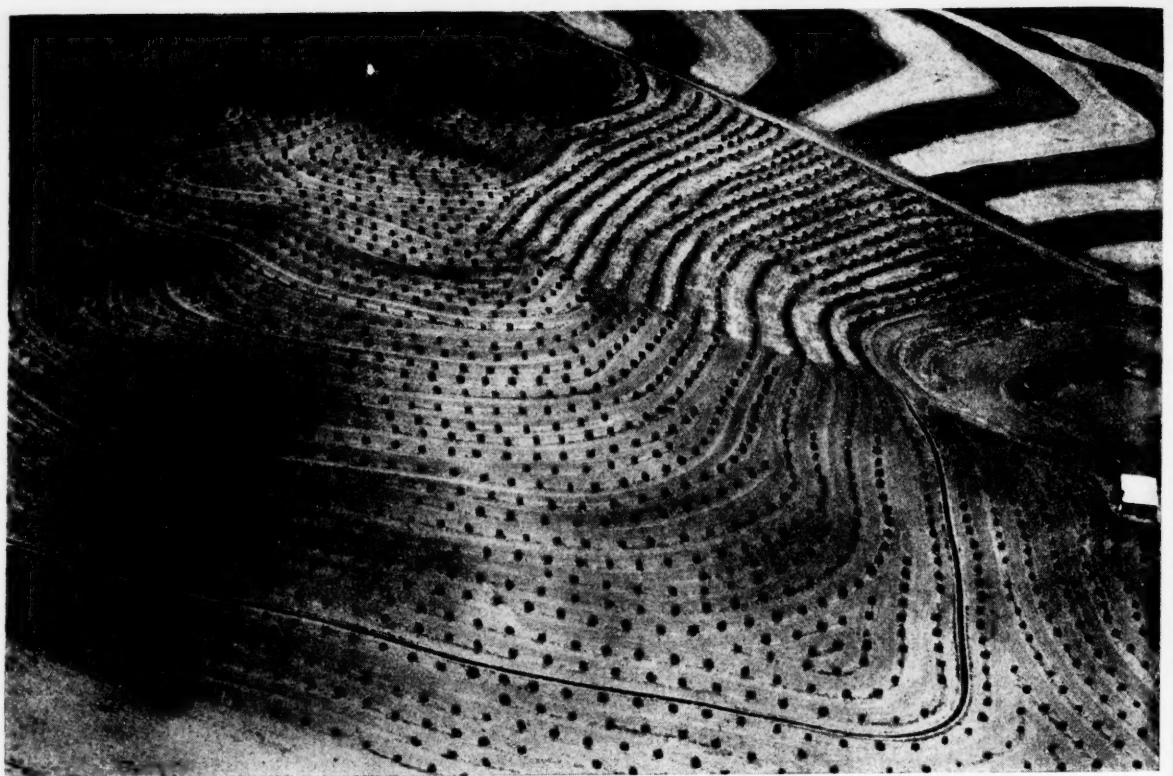
An oil pipe line has been built from the Southwestern oil fields to supply some of the eastern states. This passes through the northern part of the state and will be available for local plants when the country returns to a peace footing.

In considering the application of electric power, rural electrification has an important and significant place. Since 1935, work has proceeded steadily in supplying the rural population with power, and at present most of the state is well covered—17,584 miles of line have been built, of which 7,000 belongs to private utilities. Number of customers served is 77,806, and this added power supplied to the farms is bringing about changes in agricultural policy and practice. It is helping to expand livestock, poultry and dairy enterprises; it is improving health and living conditions; it is increasing farm income and is doing a great part in upholding the slogan "South Carolina, the Comfortable State."

South Carolina claims to have rates, both domestic and commercial, that compare favorably with the lower rate states, and better than the average.

Power Station





Peach Orchard

## South Carolina - Agriculture

The first recorded shipment of rice from Charleston, where it originated in America, was 330 tons in 1700. In 1740 the export rose to 91,100 barrels (about 18,000 tons). Production in the United States in 1860 was 53,000 tons and 1,000 tons in 1861. After the War Between the States, the dikes of the rice marshes could not be repaired, and rice growing moved to the Southwest.

The first indigo export from Charleston was 138,334 pounds in 1747, and the last recorded was 3,400 pounds in 1801. The peak came in 1774 when 1,122,218 pounds were shipped. The Revolution cut off all exports until 1782 and by 1800 the trade was gone.

Carolina was started as an agricultural colony. Industrial production was discouraged by the Lords Proprietors who wanted shipments of naval stores from the pine, structural timbers for British frigates from the sturdy oak, and semi-tropical products such as spices, silks, indigo, rice, tobacco, hides, furs, corn, tea and cotton. They managed to obtain all of these except those that belong to a tropical country.

### Agriculture and Manufacturing—the Balance Shifts

As measured in value of products, the balance swung over to manufacturing about 1921, and has been increasing since that date. At this time the ratio

is about 4 to 1 in favor of manufactures. Measured in terms of the number of persons who depend upon it for a livelihood, the ratio is 3 to 1 in favor of agriculture. Seventy-five per cent of the population in 1940 was rural; the totals being 1,432,433 rural and 466,049 urban.

The greatest immediate, as well as future, prospects for a better balance in agriculture and manufacturing will come from the local processing of more of the State's agricultural and forest products and the greater cultivation of those products best adapted to industrial use.

### Cotton is Still King in South Carolina

It is king in the state on two counts. It is the crop of greatest dollar value and it leads all other states in the percentage of its crop having lint of 15/16 inch or longer. Short staple cotton can only be used for lower grade products and the textile industry of the state needs the longer staple for the better fabrics. The 1943 value of the cotton crop was \$71,585,000 for the lint and \$16,068,000 for the cotton seed, as compared with \$40,455,000 and \$8,608,000 respectively in 1939. By offering prizes and working closely with cotton farmers, agricultural agencies have succeeded in raising the percentage of 15/16 inch or longer staple lengths from 53.3 per cent

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in 1930 to 99.6 per cent in 1943. The nearest competing state had a percentage of 96.5 per cent in 1943 and the next to it 92.8 per cent.

The state consumes three times as much cotton as it raises because of its great spinning capacity. With a production of 699,000 bales the cotton textile industry used 2,125,000 bales. It must therefore import into the state a large part of what it uses.

### Tobacco and Corn Vie for Second Place

Tobacco is traditionally the second crop of the state, and until 1943 always topped all crops except cotton. However, because the price of corn went up proportionately more than did that for tobacco, corn has the edge for the first time. The dollar value of the tobacco crop in 1943 was \$33,060,000, and in 1939 was \$19,009,000. The corresponding values for the corn crop were \$38,316,000 and \$16,786,000. The production of tobacco was considerably less in 1943 than it was in 1939 and that for corn about 5 per cent less.

The total value of crops of all kinds in 1943 was \$231,315,000. Field crops rank in the following order named as to value of products: cotton, corn, tobacco, cotton seed, oats, sweet potatoes, hay, wheat, peanuts, cowpeas, peaches, (crop failure) Irish potatoes home use, velvet beans, pecans, and the minor crops.

Commercial truck crops had a value for the same year of \$12,432,000 and the components rank as follows: Early Irish potatoes, tomatoes, watermelons, spring snap beans, asparagus, cucumbers, fall snap beans, spring cabbage, lettuce, cantaloupes, lima beans, strawberries, green peas, fall cabbage and beets.

Crops that are on the increase are sweet potatoes, peanuts, soybeans, peppers, paprika. Studies are being made of the tung tree, castor bean, perilla, rape, stramonium and others. Sweet potatoes and snap beans appear to be particularly favored by soil and climate. The former is a natural crop yielding an average for the state of 95 bushels as against 90 in the nearest competing states. Contests have developed the fact, however, that an average of 300 bushels per acre can easily be attained, and this is shown by more than a few farms at present. Splendid opportunities exist for the production of alcohol, starch, cattle feed and dehydrated products from South Carolina sweet potatoes produced in quantity for these industries. Several dehydration plants in the state are now using sweet potatoes and the only limitation appears to be the quantity available for processing.

All of which says nothing as to the edibility, the nutritiveness and the excellence of the sweet potato as a table vegetable. All of the finest varieties for table use can be grown in the state and its present use by Lend-Lease in dehydrated form will make its flavor more widely known. Just for its food value, eaten in the form in which it comes out of the ground, it deserves much more than has been granted it as an important crop. It is South Carolina's natural vegetable, as corn is to Iowa, as citrus fruit is to Florida,

and wheat to the Northwest. A farm economy based on and around the various uses of this useful plant will richly repay any efforts that ambitious farmers, looking for new fields, may make in its behalf.

### Live Stock and Live Stock Products

The total number of livestock on South Carolina farms increased about 13 per cent during 1943 and the value about 17 per cent. The livestock population shows 22,000 horses 185,000 mules, 392,000 cattle and calves, 186,000 milk cows, 800,000 hogs and pigs. The aggregate value of all livestock was \$77,176,000 compared with an average of \$42,971,000 for the ten year period 1933-42.

Dairy herds have been increased of late years and it is now a common sight to see Herefords, Black Angus and Milking Shorthorns roaming in ever increasing numbers over luscious pasturage. Seventy million gallons of milk were produced in 1943, but imports into the state are heavy to meet the greatly increased demand. More margarine made from cotton seed is being used, but imports of butter, animal feeds, meats and shortening are heavy, especially meat products.

With the assistance offered by the Clemson College Experiment Station, the State Department of Agriculture and Federal agencies, opportunities in stock raising, dairying and livestock products abound throughout the state where climate, soil, topography, water, pasturage, markets at hand and a growing demand combine to lend all aid to the enterprising seeker after a better way of living.

Cotton Harvest





Dairy Herd

### Better Crops and Better Income

The story of agriculture in South Carolina would not be complete without mention of the work that is being done to breed better plants and stock; to grow better crops and to conserve the soil.

The State Agricultural Experiment Station of Clemson College—with experimental farms in all sections of the state—is doing yeoman service in studying all phases of agriculture. Mention has been made that practically all cotton now produced on the farms of the state is longer staple, suitable for textile mill use and commanding a much better price.

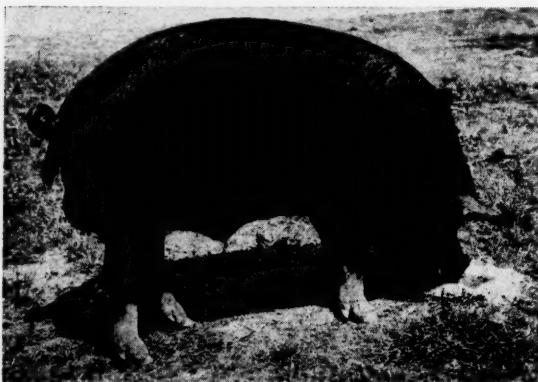
A very few years ago a joint agricultural committee was appointed to look into soil conservation

and the Federal Bureau of Soil Conservation joined with the state in conducting soil surveys in each of the counties of the state. Just last year the last conservation district was organized, for local interests must in all cases take part, and the entire state is now actively engaged in conservation, erosion control in the hills, and drainage in the Coast Plain. Soil surveys have been completed for most of the counties and work in the others is in progress.

These soil surveys include three main divisions, namely, soil type, slope, and degree of erosion. As one drives through the state there is evidence on every hand of these improved aids to agriculture which are steadily raising the level of living for the farmer. One can notice where eroded lands are being brought back by contour plowing and planting; control of run-off waters; the planting of such heavy growth crops as kudzu which thrives on the barest of eroded hillsides and which, incidentally, is one of the best of stock feeds. Better pasture means increased livestock and livestock products.

No agency, public or private, has done more to improve the strain of important crops than one private (or it might be classed a semi-public) agency which has labored for a generation and a half, and which has given the state and the entire section new and better types of pedigreed cotton, tobacco, wheat, oats and other crops. Their farms are a sight to see and their results have been truly marvelous. The work is a continuation of the pioneer work started by Luther Burbank. It is hoped to describe this work more fully in a separate article and in a later edition.

South Carolina Bred Hog



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## South Carolina - Minerals

The value of the major mineral products of South Carolina for 1940-41 was \$5,280,000, and it is clear this is but the beginning of a development that creates an almost entirely new horizon. The ground has, in a very literal sense, hardly been scratched. Appropriation of state funds is being advocated to initiate the exploration of metallic minerals during this time of scarce critical materials. Prospecting in the known areas of the non-metallic minerals would also seem to be indicated as opening a field of great promise.

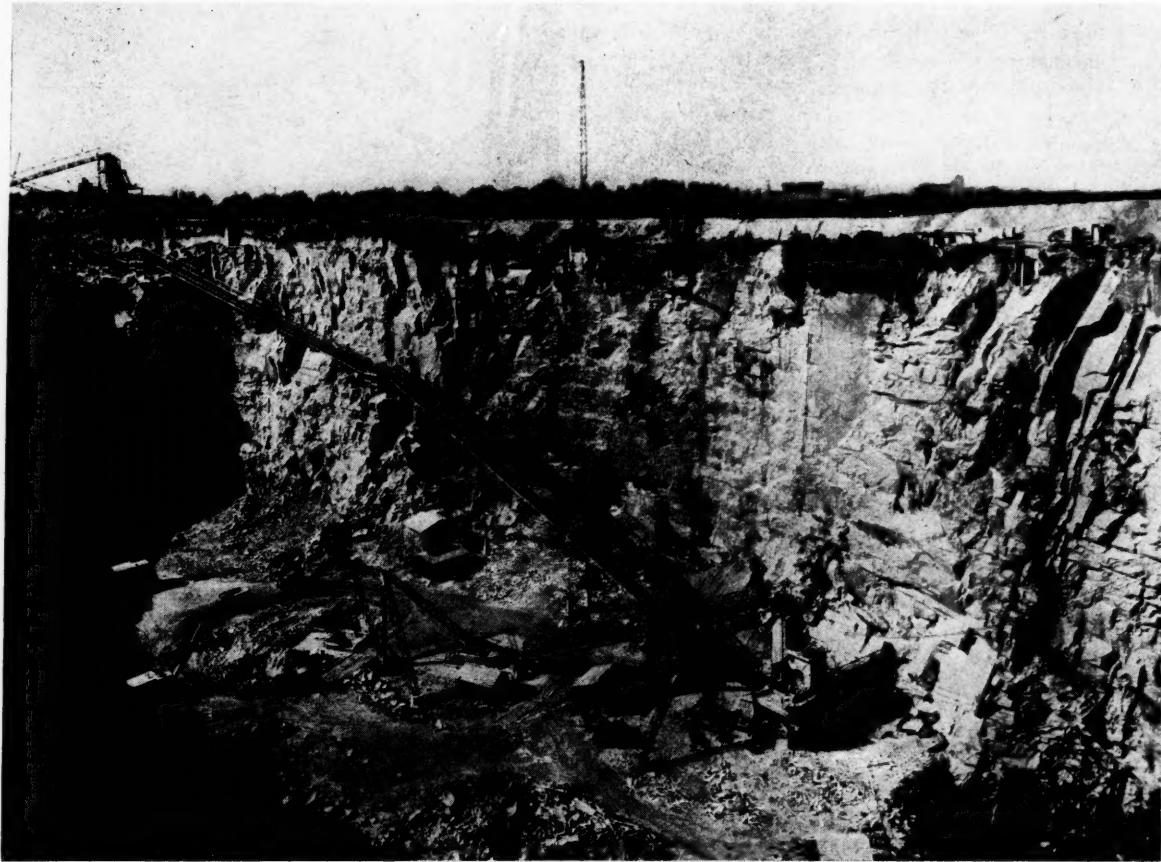
Vast deposits of non-metallic minerals underlie most of the South Carolina Coastal Plain. A broad belt of kaolin and clay runs across the state along the Sand Hill zone. Between that area and the coast, and underlying more than half of the total area, are located the limestones and marls, and near the coast occur the phosphate rock deposits most of which lie in or along river beds.

The high grade white clay or kaolin produced in South Carolina in 1941 had a value of \$1,596,471. The value has increased steadily from \$865,177 in

1938. This clay is a raw material necessary as a filler in the manufacture of paper and to a smaller extent in the manufacture of rubber. It is also used in the manufacture of electrical porcelain, sanitary ware, and other ceramic products. In fact all the constituent materials including many types and grades of kaolin, silica, feldspar, etc., exist in the state and await development, not only for the manufacture of chinaware, but throughout an almost limitless field in the utilization of these resources, now shipped out of the state for processing. The outlook for expansion here appears to be definite.

A pilot plant for the production of alumina from kaolin and limestone is in process of construction. The kaolin will be brought to the site of the limestone quarrying and there converted into alumina. It is claimed that when developments such as this will have brought the cost of production of high alumina kaolin in line with bauxite, these raw materials, which South Carolina has in such abundance, will prove their full value.

Limestone Quarry



Crystalline limestone occurs in the northern part of the state in the Piedmont Plateau. The areas of limestone which lie in the Coastal Plain are softer and are suitable for many purposes such as agricultural lime, slaked lime, cement, chemical production of many kinds, rockwool, etc. A company to produce cement from these limestones has been organized, and its plant only awaits necessary priorities.

Phosphate rock deposits lie along waterways near the coast from Berkeley County, south to Beaufort County. In the 1880's, phosphate mining was a considerable and profitable industry in the state. With the present plentiful supply of cheap electric power, and the further development of the chemical uses of phosphates, these deposits are again becoming of interest and plans are now forming to make practical use of this valuable mineral, especially for the production of phosphorus and phosphoric acid.

Other minerals, such as sillimanite, spodumene, topaz, vermiculite, corundum, feldspar and many others have been located. Some are being mined, but opportunities abound for new developments. Only recently, deposits of sillimanite were discovered in Greenville and Spartanburg counties. This is one of the critical minerals, used for spark plugs and high grade ceramics. Also only recently, a corundum deposit was opened up in York County. It is being used for grinding quartz plates used in radio sending apparatus.

North of the Sand Hills, in the Piedmont Plateau, and approaching the mountains, there are granites and other non-metallic minerals, besides various metallic ores. Some of the valuable minerals occur in traces not fully explored. Manganese and iron occur in large, low-grade masses. Deposits of manganese are found in Abbeville, Greenwood, Cherokee and Spartanburg counties. Large bodies of low grade iron ore exist in the northern counties.

The value of stone quarried in South Carolina in 1941 was slightly over \$2,500,000, an increase of \$1,000,000 over the 1938 value. Much of this stone is crushed for use in surfacing highways and for other purposes, but it is also extensively used as dimension stone for buildings and by the monument industry. The building granite is of superior quality in resistance to weathering and makes a very beautiful finished structure. Decomposed granite is sometimes used in the making of ceramic materials such as buff colored brick.

The sand and gravel produced in South Carolina in 1941 had a value twice that of 1938. The gravel is used not only as aggregate in concrete but as railroad ballast. The sand is used chiefly in making mortar and concrete. It is also used as filter sand in municipal waterworks and for sand blasting. High grade silica sand deposits for use in making glass have been opened up. Some of these deposits analyze 99 per cent silica with less than one-tenth per cent iron oxide.



Granite Quarry

The national cessation of gold mining closed a South Carolina mine for the duration of the war only. It is perhaps surprising to know that more gold was taken out of one mine in this state than was mined from all states east of the Mississippi River. In fact, with the exception of the Black Hill area, more was mined than from all the territory east of the Rockies.



## South Carolina - Forests

The forests of South Carolina cover 10,700,000 acres, or more than 55 per cent of the land area of the state—and represent the state's greatest natural resource, with the exception of the soil itself. They stretch from the mountains to the sea, and furnish employment to tens of thousands of people. Their products are valued at \$75,000,000, and the industrial importance of what is harvested from them is second only to that of the textile industry.

The number of industries engaged in the utilization of forest products is 223. They are capitalized at \$46,400,000, and use directly 19,389 persons. In addition to full time employees, a great many others are engaged part time in the production of forest products. Farmers cut pulpwood, cross-ties and other forest commodities between their planting and harvesting seasons, and this constitutes an important addition to their revenue.

Over half of the forest species is pine. This varies from the slash pine of the Southern corner of the state, to the short-leaf and Virginia Pine in the mountains. Long-leaf and loblolly are found in large masses throughout the state to the foothills of the mountains. The most important of all species is the loblolly pine upon which the forest industries, including the pulp mills mainly depend.

The hardwoods comprise 10,284,000,000 feet out of a total of 30,196,000,000 of all species in the state. The most important of these are the red gum, black gum, red oak, white oak and yellow poplar. Many additional species are found within the borders of the state.

Next to walnut, red gum is the most prized of all species for the production of high grade face veneers and the better quality of plywoods used in the manufacture of furniture and other quality articles. All of the nation's red gum supply is in the South, and 10.6 per cent of it is found in South Carolina with its stand of 2,950,000,000 feet, which is greater than that of any other state.

The plywood industry has established several large industries in the state to take advantage of the fine red gum stands, and the next step will be the use of it as plywood in fine furniture manufacture.

Black gum has a stand of nearly 2,000,000,000 feet, and red oak 1,400,000,000 feet, and it is from small stands remaining on cut-over land that owners may expect to find demand from the plastics industry.

The forest industries in operation range from pulp mills, with investments totaling millions, to small portable saw mills. There are huge saw mills, veneer plants, furniture, box and woodworking factories,



Loblolly Pine

creosoting plants and cooperage plants, shuttle and handle makers, shingle mills and turpentine stills. Farmers are finding a ready cash market from pulp mills for cull material, the cutting of which improves the remaining stand.

Logging and manufacturing waste represents 35 per cent of timber cut in the state, and while that average is lower than that for the United States, it is the source of another supply of raw material that can be processed into plastics and pressed wood.

The volume of pulpwood cut in the state has increased from 50,000 cords in 1936 to nearly 800,000 cords in 1941, and this is increasing annually.

The Forestry Commission is approaching the problem of increased forest growth from three directions—fire protection, forest management, and reforestation. Maximum results can only be attained by continued work on all three and the department wants maximum results. So far the farthest strides have been made in fire protection. At present 24 of the 46 counties have organized county-wide forest fire protection, and these represent 61 per cent of the woodland area of the state.

During the 15 years that reforestation has been an aim, about 128,000,000 forest seedlings have been distributed at cost to farmers and land owners.

## South Carolina

### - Ports -

South Carolina is favored with three unusually good ports of access to ocean trade—Charleston, Georgetown and Beaufort.

#### Charleston

The harbor of Charleston has thirty-five feet depth of channel to accommodate the largest ships and its expanse will take the largest fleets, naval or commercial. The Post-war Rivers and Harbor Bill recently passed at Washington calls for an expenditure of nearly \$2,000,000 to provide additional ship anchorage between Castle Pinckney and Fort Moultrie. The port is seven miles from the open sea and is protected by an island screen and jetties at the entrance. With the trend of industrial development to the South and with the nation directing its attention to South America with increased tempo, with economic shifts taking place that will bring about many changes, Charleston is in a particularly favorable location to regain its place as one of the great ports of the nation.

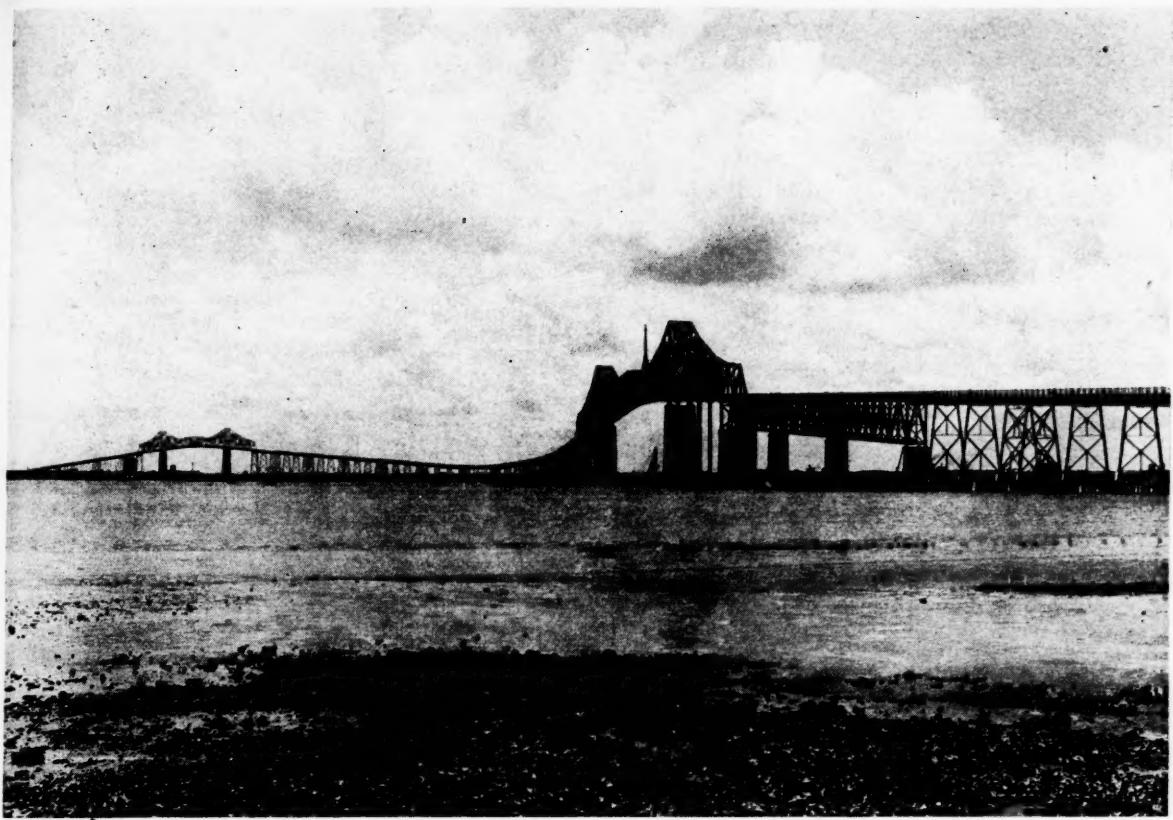
A vastly expanded navy yard, engaged in the construction of naval vessels has supplied the initial impetus, while a large private shipbuilding and repair plant, with its drydocks provide for commercial business on a permanent basis after the war.

Other industries recognizing Charleston's advantages have recently located there. These include a metallurgical plant for the manufacture of alloys, and a large pulp and paper plant. Older industries include fertilizer plants, lumber, wood preserving and wood working plants, oil terminals and forwarding warehouses among many others.

The huge army port terminals have been expanded and will provide a great modern port in themselves when released for peacetime trade. The inland waterways are being rapidly improved as war necessities have accelerated their use. Pulpwood and potatoes are the heaviest shipments into Charleston at the present, but other industries and commercial houses are receiving and delivering general cargo via the intercoastal waterway in greatly increased volume.

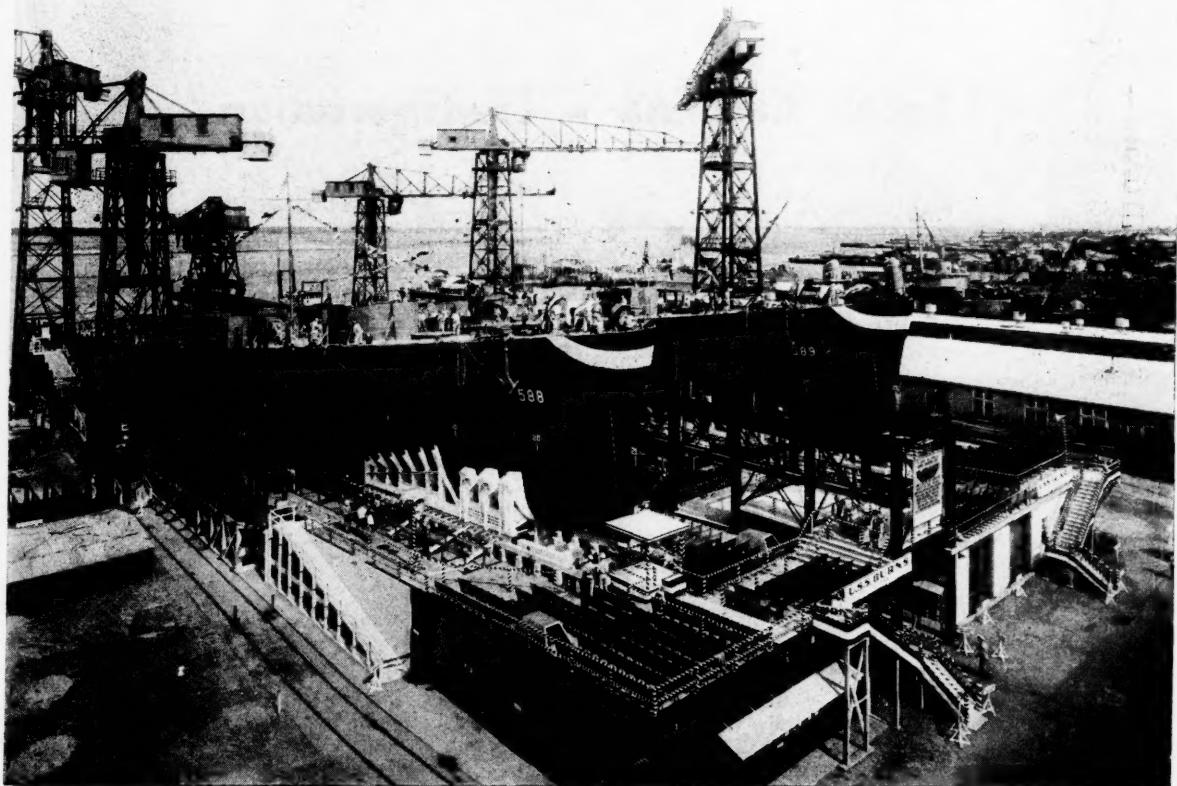
Charleston is most advantageously situated to participate in South American commerce. It is in favorable competing distance to the principal ports of the Southern Continent, and combined rail and water distances from many of the principal United States' interior centers of trade maintain a differential in Charleston's favor. The port also has a direct rail service and short access to the Cincinnati gateway across the Ohio River into the rich central freight area.

The Santee-Cooper power development is situated



Above—Cooper River Bridge

Below—Two Destroyers Prior to Launching at Charleston Navy Yard



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only 30 miles from Charleston and is essentially a part of the port area. In the post-war period much of its power will be available to new industries. The Cooper River which diverts the Santee River into Charleston Bay will be dredged to a depth of 30 feet if present plans are perfected. This will provide an industrial zone for the entire thirty miles between the harbor and the power development that will accommodate plants of many types.

### Georgetown

Georgetown, located at the head of Winyah Bay, originally was a lumber shipping point. It is now the site of successful pulpwood, paper products and chemical industries. Among these is what is claimed to be the largest Kraft paper plant in the South. With large forests at its back door, with power close by, a sufficiency of water from the rivers in its vicinity, the development of new industries in plywoods, plastics and other cellulose base manufactures is well favored and opportunities await such industries. An additional appropriation has recently been granted by Congress for deepening the harbor at Georgetown and the channel through Winyah Bay.

### Beaufort

Beaufort has a splendid harbor and system of waterways. Its twin, Port Royal, was formerly a thriving shipping point as the terminal of the Charleston and Western Carolina Railroad. The Beaufort area is rich in forest products, and with ample electric power it offers definite advantages to

industry. Incidentally, Beaufort is one of the loveliest spots of old Southern charm on the entire Atlantic Seaboard.

A considerable working population has moved into the area, brought by the Parris Island Marine Base improvements and other enterprises. Many of these people will remain and become permanent residents. There are many fine sites along the waterways for industrial plants, and with raw materials from forest and farm, as well as phosphate deposits and cheap power, an era of broader industrialization may be expected.

### State Ports Authority

Anticipating coming opportunities for taking advantage of Charleston's position as a strategic South Atlantic port, and to enable Georgetown and Beaufort to participate in the location of basic industries and their use of the inland waterways, the Legislature two years ago established the State Ports Authority with full powers to issue bonds; to take all measures to provide facilities for modernizing the ports, and to cooperate with other agencies in developing industries in the state. The Authority recently completed its first study of conditions and requirements which led to a decision to proceed with further surveys by national specialists in port development. An operating organization is being set up to make Charleston one of the modern ports of the nation, and this includes assistance to and cooperation with industries which will desire to take advantage of the location, power and raw materials that are available.

## South Carolina - Transportation

### Railroads

The state is served by three major railroad systems—the Atlantic Coast Line, the Seaboard Air Line and the Southern. They operate a total of 4,080 miles, which is about four-fifths of the railroad mileage within the state's borders. Practically every community in the state has railroad communication.

In spite of the great burden placed upon the rail carriers by war-time needs, their work for the fullest development of the territory which their lines traverse is outstanding. All of them maintain excellent Industrial Departments replete with data upon resources and opportunities, and their field representatives, as well as managing officials, extend cooperation constantly to state and local authorities working for increased development.

With modern improvements in equipment and streamlined trains, passenger service has turned a new page in railroad history. While handicapped by war's demands, it is apparent that the utmost effort is used to accommodate passengers, as well as rendering prompt freight service.

### Highways

Whoever has driven over the highways of South Carolina during the past few years will confirm the opinion that the state has one of the most modern, technically designed and constructed systems of good roads in the nation. These highways are maintained to high standards and are splendidly marked.

The state did not start its system of paved highway building as early as did some of the others but it did, during that preconstruction period, set up a highway organization which made long-time studies of the best practice of all of the other states so that when the local system was initiated, it would be assured of the very latest practice. Starting in the late 20's, a program embracing bond issues to pay for the roads and the construction of a system to cover the state was started; the work was carried on from that point with celerity during the 30's and, by the time World War No. 2 became a reality, the system was complete and ready for whatever demands might come.

The highway system at present comprises ap-



Fort Jackson Boulevard

proximately 12,000 miles, divided into 7,300 miles of Class No. 1 hard surface highways and 4,700 miles of earth types. The paved road system includes approximately 80% of the total rural roads and every city and town of over 500 population is served by at least one modern state highway.

Concrete and steel bridges of the most modern type span the major streams from the sea to the rugged gorges of the Blue Ridge Mountains. These bridges are of pleasing design, of ample width and of permanent construction.

A number of dual lane sections of highway, with landscaped parkways dividing opposite traffic, have been constructed in recent years; notably on the highway north out of Charleston, on the stretch between Florence and Darlington and the link which connects Greenville and Spartanburg.

The total investment in state highways in South Carolina, as of June 30th, 1943, was approximately \$172,000,000 on which the funded debt has been reduced by annual amortizations to about \$54,500,000. Revenues are provided for construction and maintenance and debt retirement from a 6 cents state gasoline tax of which 5 cents is allotted to the state highway system on all gasoline sold in the state with the exception of aviation gasoline. The financial condition of the State Highway Department is sound and even with the reduced revenues from the gasoline tax and license fees, which has resulted from

rationing, the Highway Commission has been able to retire all principal and interest on the bonded indebtedness as it has become due, and to meet all other expenses of the department. It is conservatively estimated that, without any increase in revenue over that of 1943, the department will continue to meet all payments on the funded debt and to take care of all operating expenses out of current revenue.

Since the beginning of the defense program, the Highway Department has constructed Defense Access Road Projects to military establishments and sources of supply throughout the state. However, all new construction, except that classified as essential to the war needs, has been deferred for the duration.

It is recognized that to be abreast of the times and to provide adequate highway service for anticipated increased post war traffic, highway improvements and new construction will be necessary, especially on arteries into and through the principal cities. To this end the department is now engaged in the preparation of plans for after-the-war projects estimated to cost \$30,000,000 in new highway construction projects.

Traffic on the highways has shown very little decrease in volume because of gasoline limitations. This is due to the military establishments in all parts of the state. Figures just released show that 500,000 army troops have been trained in South Carolina and this is still in progress. This involves a tremen-

dous use of the highways for supplies, maneuvers and intercommunications, but the roads have borne this great added strain in excellent shape.

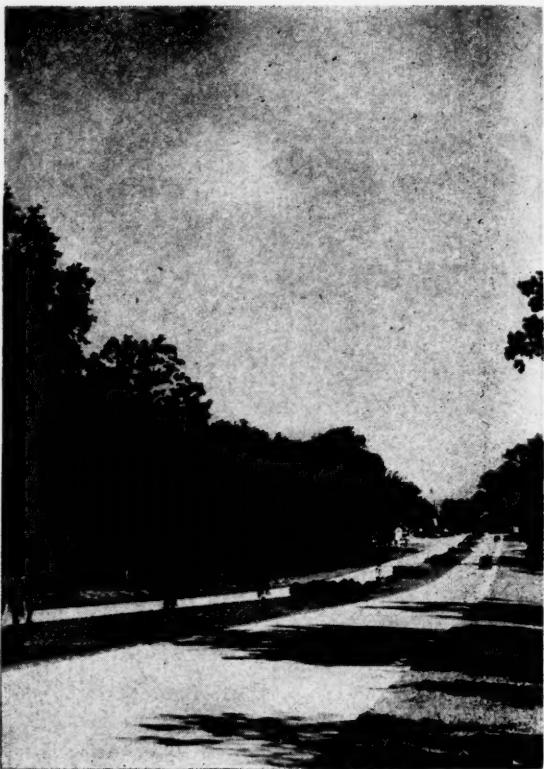
There are twenty-five regular schedule passenger bus lines and twenty-four motor freight lines in the state handling a capacity business over the highways. The number of motor registrations last year was 278,186 automobiles, 49,189 trucks, 3,887 trailers and 2,021 motorcycles. The annual gasoline tax receipts from the 5 cent per gallon tax allotment increased from \$7,906,700 in 1936 to \$13,108,000 in 1941. In 1942, it dropped back to \$10,713,000, but the Highway Department adjusted its maintenance expenditures to continue interest and amortization payments on its bonded indebtedness and to show a balance on the credit side.

### Air Transport

What can South Carolina expect in post war aviation? Not an aeroplane in every garage with a spare helicopter on the roof, perhaps, but the fact is that the growth of aviation during the war period has established it as a transportation industry which will continue to develop by leaps and bounds when it has the opportunity to more fully serve commercial needs.

South Carolina is planning to make full use of its potentialities. The state has now an excellent system of airports which meets the present needs of commercial aviation, and with a return to civil use of those airports now being occupied by the military services, the state will be in a favorable position for the peacetime requisites of aeronautics.

In 1935, the State Legislature created the South Carolina Aeronautics Commission and charged it with fostering, developing and promoting aviation in South Carolina. The work of the commission is supported by an allotment of 5 cents per gallon on all aviation gasoline sold in the state, and that has increased from \$19,000 in 1936, the first full year of operation, to \$148,000 in 1943, this in spite of the severe restriction on all aviation other than military. Plans for expansion, improvement and elimination were made as dictated by the actual needs and economic feasibility. Complete airport maintenance was instituted in 1938 as a contribution to safe aircraft operation, and, in 1940, the Aeronautics Commission added an engineering staff to prepare specifications, layouts, and engineering services for new airports and for the expansion and improvement of existing airports. By the spring of 1944, more than \$100,000,000 had been expended on airports in South Carolina, paid for from Federal, State and private sources, and the Commission's post war development program estimates an additional \$15,000,000 for the completion of the state's airport system. Included in this program are twenty-four new airport projects which complete the basic allocation of at least one airport in each of the forty-six counties of the state. The program provides for adequate airports, hangars, administration buildings and other equipment and housing for the full development of air line service for the major cities and feeder and inter-

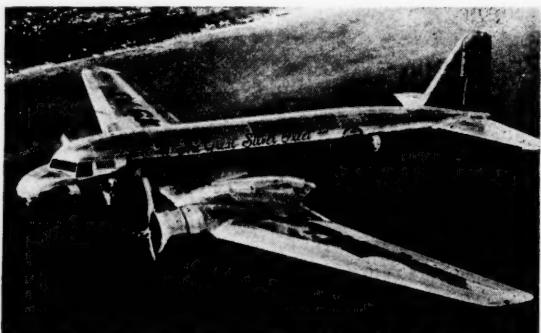


South Carolina Dual Highway

mediate services for the other communities and trade areas, in addition to ample facilities for private aviation.

The Commission supervises the activities of aviation, other than military, in the state, which includes the flourishing flight schools, training fields and commercial service.

Two national air lines, Eastern and Delta, provide service to the major cities of the state and National Air Lines was recently authorized to operate on the New York-Charleston-Miami route. Increased air service for the state and its principal cities have been requested by the Delta, Eastern, National, Colonial, American, Pennsylvania-Central and Braniff Air Lines, which will provide national and international air service. Foreign service from the Port of Charleston is also being sought.



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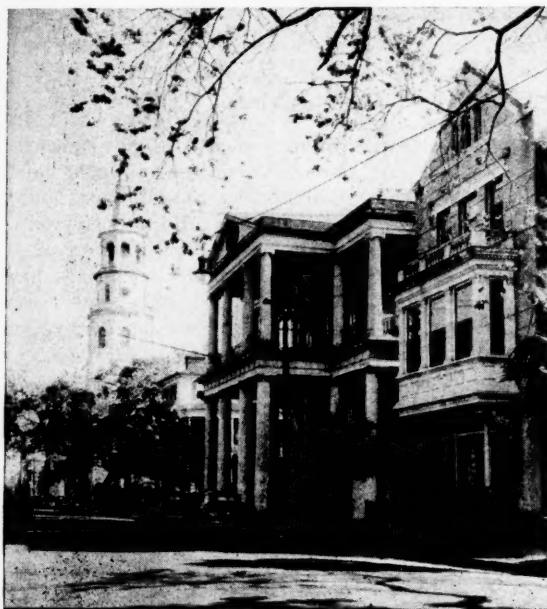
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## Air Transport as An Aid in Marketing

Fresh vegetable crops and fruits are important agricultural products in South Carolina and the Aeronautics Commission's research department is uncovering methods for utilizing air transport in marketing perishable farm products of the state. Asparagus, which is one of the leading cash crops, it is found, can be cut, packed, shipped by air transport and consumed in the distant markets within a few hours, and such produce shipments are feasible in view of the market lag which inevitably occurs when surface transportation only is available.

This is but one example of what aviation can do. The same thing can be applied to fish, oysters, and seafood in general, and when integrated with a similar exchange of air cargo, it will permit a normal and healthy growth of air transport from every corner of the state opening up markets throughout the nation.



## South Carolina

### - Finance -

The State of South Carolina is today in an excellent financial condition. On June 30, 1943, the outstanding debt was \$54,475,000.00. An Act passed by the 1943 General Assembly appropriated \$6,800,000.00 from the existing surplus which was set aside to pay the general funded debt. This debt is being paid off as fast as the various obligations mature and the funds so set aside cannot be used for any other purpose. In addition, \$3,000,000.00 was set aside from the remaining surplus to retire the bonded indebtedness of all state institutions. This leaves the total state indebtedness limited to the bonds issued by the South Carolina Highway Department for the retirement of which the bulk of the revenue derived from the gasoline tax was pledged. The total tax of 6 cents per gallon is distributed on the basis of 5 cents to the State Highway Department and 1 cent to the counties. This distribution is made after deducting the total tax on all aviation gasoline sold in the state which goes for the support of the South Carolina Aeronautics Commission. These funds, as shown in the table below, place the Aeronautics Commission in good shape for post war development plans. Even in these days of gas rationing, there is more than sufficient income to retire the Highway Certificates of Indebtedness as they mature and to pay the current interest. A comparative statement of gasoline license tax collections by years showing the distribution, is presented below.

With the resumption of gasoline use in the post war period, these funds will no doubt again reach a high level. Meanwhile, the highway system is being well maintained.

### South Carolina Gasoline License Tax Collections

Year	To State Highway Fund	To Counties	To State Aviation Fund	Totals
1933	\$5,133,747.86	\$1,026,749.59	.....	\$6,160,497.45
1934	5,925,408.99	1,185,081.80	.....	7,110,490.79
1935	6,777,296.99	1,355,459.37	\$398.01	8,133,154.37
1936	7,315,521.19	1,463,104.24	19,292.68	8,797,918.11
1937	8,675,247.43	1,735,049.48	26,839.83	10,437,136.74
1938	9,226,274.40	1,845,254.89	31,632.60	11,103,161.89
1939	9,782,808.44	1,956,561.65	30,311.76	11,769,681.85
1940	10,654,000.87	2,130,800.12	53,574.00	12,838,374.99
1941	12,147,020.09	2,429,403.96	73,271.31	14,649,695.36
1942	12,766,611.50	2,553,322.25	104,049.20	15,423,982.95
1943	8,935,482.44	1,787,096.46	148,215.45	10,870,794.35
<b>Totals</b>	<b>\$97,339,420.20</b>	<b>\$19,467,883.81</b>	<b>\$487,584.84</b>	<b>\$117,294,888.85</b>



Tobacco Warehouse

### Taxes

The Act of 1943 effective January 1st, 1943 also abolished the State Property Tax. The 1944 General Assembly placed the state in a still better position when it directed the State Budget Commission to ascertain the amount of the cash surplus in the State Treasury at the close of business on June 30th, 1944 and to transfer the excess of such surplus above \$1,000,000.00 to a fund to be known and designated as "The State Post War Reserve Fund," this fund to be invested in bonds of the United States. South Carolina has set its financial house in order for any uncertain days to come.

The state does not levy a general sales, use, or gross receipts tax. The greatest proportion of tax revenue is derived from taxes on the sale of motor vehicle fuels and other selected commodities and services, which provide three-fifths of all tax income. Receipts from taxes in the sale of alcoholic beverages increased from \$3,000,000.00 in 1941, to \$7,000,000.00 in 1943. Individual income tax collections have almost doubled in the same period although the tax rate has not been increased. Revenues from corporation income taxes were almost tripled without an increase in rate.

County expenditures have been carefully supervised, resulting in a steady decrease in county indebtedness. The total county indebtedness for the forty-six counties decreased from 1938-1941, as follows:

1938 .....	\$44,025,316
1939 .....	42,792,125
1940 .....	40,844,698
1941 .....	38,458,579

The financial condition of these counties was improved greatly by state assumption for the support of the nine months school program, by the total assumption of the school transportation system, and by the counties' share in gasoline and liquor taxes.

### Banking

Concurrent with improvement in governmental finances, private financial institutions have also shown remarkable development, based upon sound principles. South Carolina banks fall into two groups—National and State. Of the one hundred and sixty-six banks in operation, all of which are in a sound financial condition, eighty-five are state supervised. The remaining eighty-one are represented by National Banks and their branches. The total resources of State and National Banks, as of June 30, 1943, were \$351,448,524.29. These banks, for the most part, are long established institutions. Their officers and directors are men who understand their communities. They have the knowledge that the success of a bank and that of the community which it serves, is a mutual development. These banks stand ready to furnish financial aid and capable advice for the development of sound business.

The total resources of the eighty-five State Banks increased from \$112,302,775.64 on December 31st, 1942 to \$143,434,784.25 on December 31st, 1943. This increase occurred while a tremendous investment by the public was being made in United States War Bonds. The resources of the National Banks have increased proportionately.

### Insurance

Steady progress has been made by the people of the state in the recognition of the necessity of family security. The amount of life insurance in force in legal reserve companies has increased from \$591,198,288.00 in 1933 to \$1,009,260,395.00 on December 31st, 1942. This amount was increased \$84,792,094.00 by December 31st, 1943. This does not include, of course, the vast amount subscribed by men of the armed forces in government insurance. There are a

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number of domestic companies, both large and small, that are very active.

Accident and Health Companies showed an increase in premiums received in 1933 of \$388,126.29 to \$1,895,375.39 in 1942. Five domestic Industrial Accident and Health and Hospitalization Companies have been established in the last few years and are progressing rapidly.

Risks written in fire insurance have increased from \$498,427,379.00 in 1935 to \$983,095,070.00 in 1942, while losses paid in 1933 were \$2,372,258.38 as compared with \$3,649,255.92 in 1942.

Casualty insurance, due to the decline in the use of the automobile and the restrictions on travel, has decreased slightly but not as much as might be expected.

## **South Carolina**

### **- Education -**

All public schools in South Carolina are supported by state funds. These funds, in many instances, are supplemented by local school districts. The governing body consists of a State Board of Education with

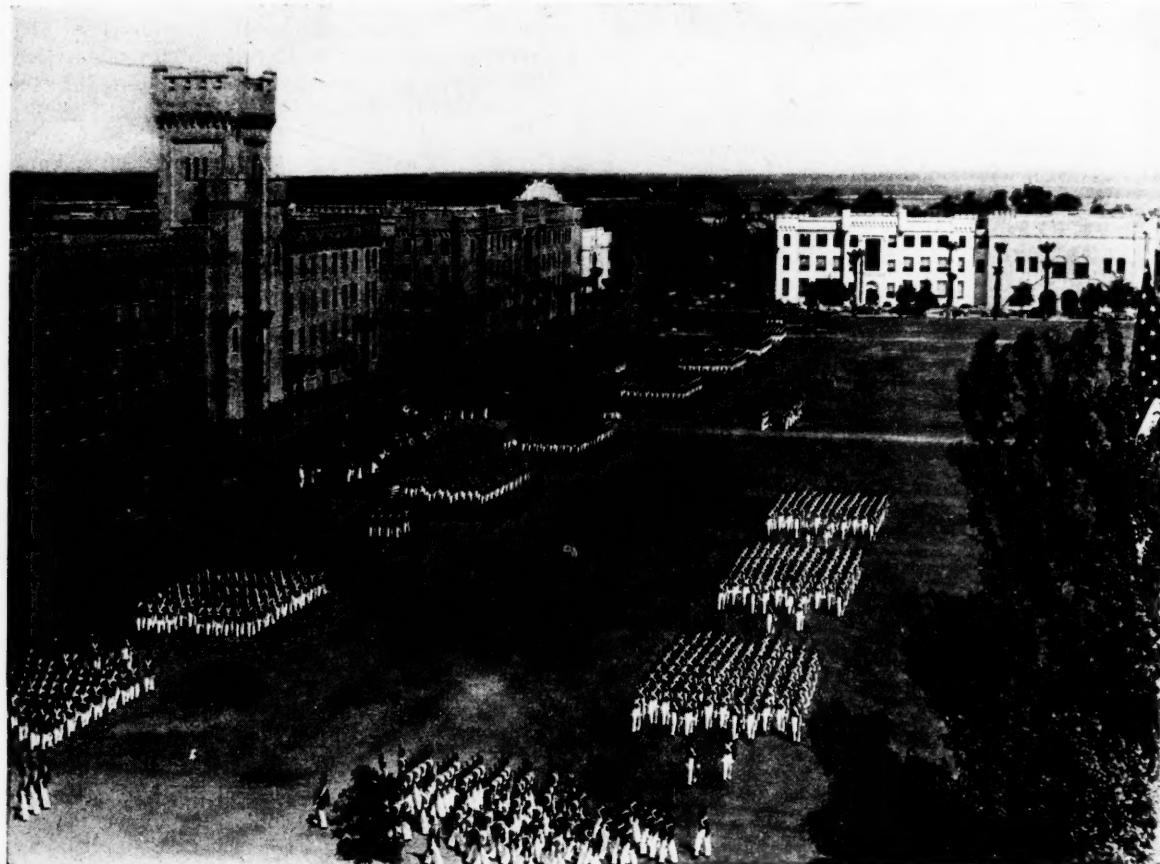
a representative from each Congressional District and from the state at large. This board controls all policies. The State Superintendent of Education heads the State Department of Education, which includes every active division of Adult Education, School House Planning, Teacher Certification, Home Economics, Trade and Industrial Education, Vocational Agriculture and Vocation Rehabilitation. All teachers are certified by the state and not by local boards.

For the 1942-43 term there were 1,453 Elementary white and 2,167 Elementary negro schools or a total of 3,620 Elementary Schools. There were 325 white high schools and 143 negro high schools, or a total of 468 high schools. The enrollment for the elementary grades was 372,466, and for the high schools, 92,986.

An Act of 1907 recognized support of the high schools as a state obligation and financial aid was appropriated. This provision recognized four years of high school based upon seven years of elementary education. Upon recommendation of the State Board of Education and by resolution of the General Assembly of 1944, the school system was extended from eleven to twelve grades. The additional year is not an extra high school year, but is spread over the whole period of education.

Since many former small schools were consolidated in recent years, transportation became a sizeable financial burden to the local districts, particu-

**Regimental Parade at The Citadel**





The Citadel

larly in the thinly populated areas. This cost is now carried entirely by the state and an adequate system of bus transportation is maintained.

Although the first permanent settlement in South Carolina was made by the English in 1670, there is no authentic record on the subject of public schools in the state until the Acts of 1710 and 1712. The early colonists considered education as a private responsibility and opposed the levy of any tax for public education. The children of the well-to-do received all of their training from tutors, or private church schools and academies. The Acts above mentioned provided for a free school in Charleston, and another Act of 1722 provided for other free schools, of which seven were very soon established. None of these were state supported.

### Free Schools

The free schools were designed and intended, evidently, for the children of the poorer part of the population. They were not popular with the majority. On the contrary, the fixed idea that they were charitable institutions retarded the development of public education for a long period. It should be noted, however, that in the meantime excellent training was provided in private schools.

The first general school law entitled—"An Act to Establish Free Schools Throughout the State"—was

passed in 1811, and provided for the state support of such schools. The Act called for the number of schools in each district to be equal to the number of members each district had in the Lower House of the General Assembly. Free schools under the provisions of this Act increased steadily until 1850, and in 1852 state appropriations for the same objective were materially increased.

It was not until 1877 that the state system of education was again revised. The War between the States had occurred in the meantime with the following devastating effect of the "Reconstruction" period. In the year mentioned, the State Board of Examiners made provision for the education of negro children in the general school program under the able direction of State Superintendent Hugh S. Thompson. From the very beginning of his regime until today, there has been marked progress with the result that South Carolina has a most excellent system of public schools that compares favorably with those of other sections, as the details given above concerning the number of schools and the enrollment both for whites and negroes bear evidence.

### Higher Learning

It is worthy of note that South Carolina was one of the first states to establish state supported institutions of higher learning. The University of South Carolina was chartered in 1801 and opened in 1805 at Columbia. The organization includes the following schools: Arts and Science, Commerce and Secretarial Science, Education, Engineering (Mechanical, Civil and Electrical), Journalism, Law, Pharmacy, and Graduate. The University is a co-educational institution.

The Citadel or The Military College of South Carolina, established in 1842 at Charleston, South Carolina, is one of the oldest and best known military colleges in the nation. Courses in Liberal Arts, Engineering and Business Administration, leading to the A.B., B.S., and C.E. degrees are offered.

Clemson College, established in 1895, is the State Agricultural and Mechanical College. The services include, in addition to the college work, the Divisions of Agricultural Extension, Agricultural Research, Livestock Sanitary Work, Crop Pest Commission and Board of Fertilizer Control. These divisions bring the college in close contact with agricultural and industrial enterprises throughout the state.

Winthrop College, located at Rock Hill, is the South Carolina College for Women. It was first called the Winthrop Training School of Teachers and was established in 1886. Courses leading to the A.B., and B.S. degrees in Art and Science, Teacher Training, Home Economics and Commerce are offered.

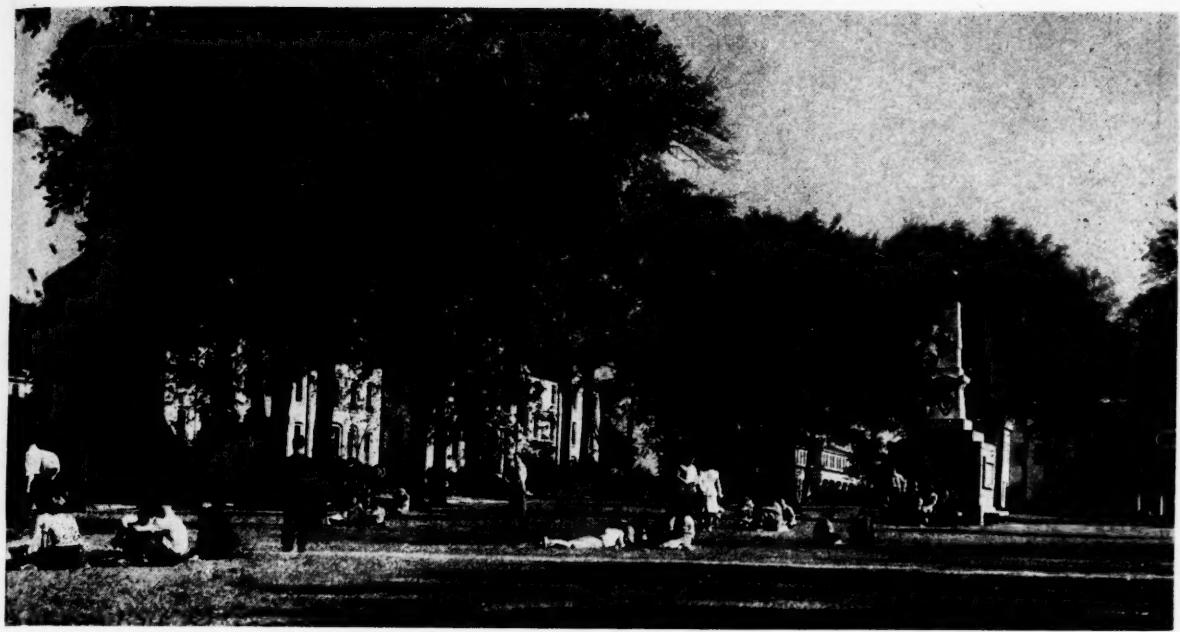
The Medical College of South Carolina was established at Charleston in 1824. It did not become a State College until 1913, although it had received state appropriations from time to time.

The Colored Normal, Industrial, Agricultural and Mechanical College was established by the state at Orangeburg in 1896. The college also directs the work of negro farm and home demonstration agents and

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View of University of South Carolina

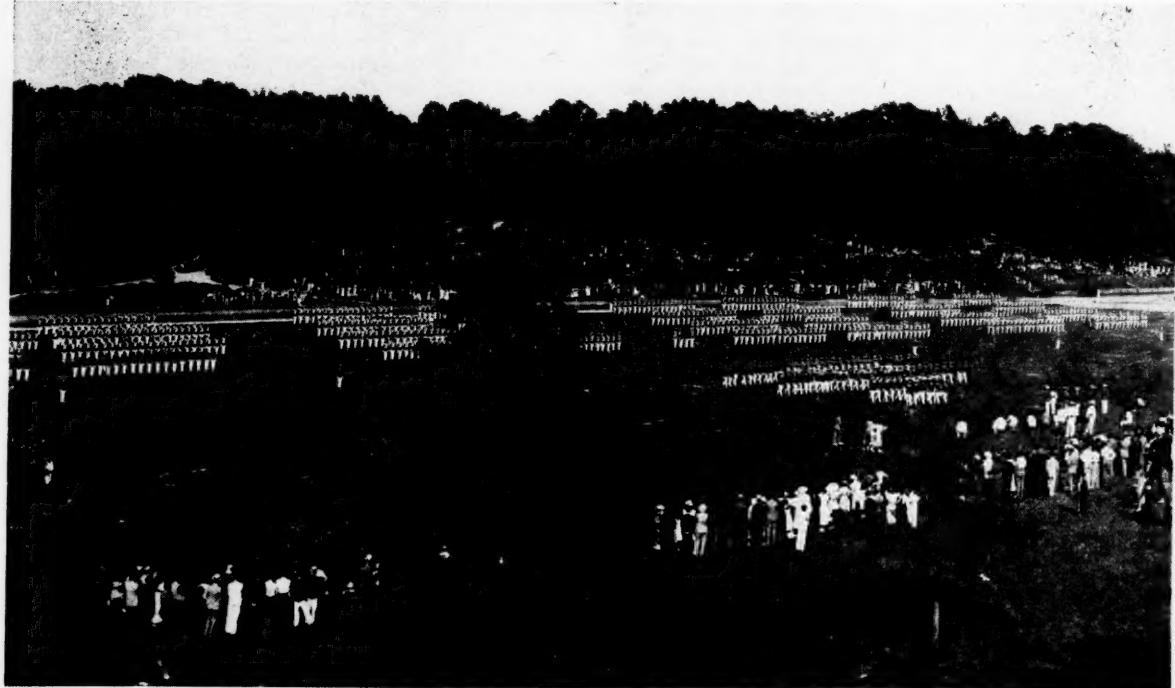
the negro agricultural, home economics and trade teachers in the public schools. This is an institution of which the state can be justly proud. Its work has been outstanding.

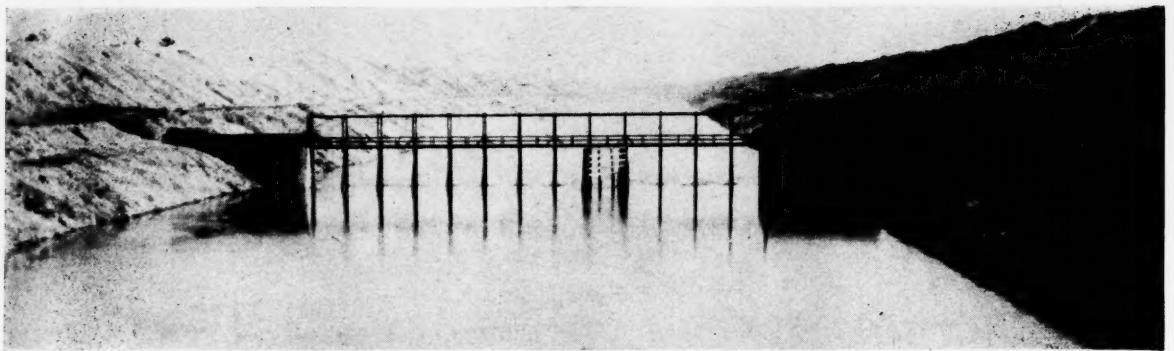
Besides the state supported institutions, there are twelve white and four negro denominational or private four year colleges. The white colleges are Coker, College of Charleston, Columbia Bible College, Columbia College, Converse, Erskine, Furman University, Lander, Limestone, Newberry, Presby-

terian and Wofford. The negro colleges are Allen, Claflin, Benedict and Morris. Three Junior Colleges for whites and four for negroes are also located in the state.

The charge has been made in uninformed quarters that the South has been delinquent in providing for the education of the negro. It is easy to demonstrate that such statements are not in accord with the facts. In South Carolina the inaccuracy is glaring considering what this state is doing for education.

Clemson College Review





Diversion Canal

## South Carolina - Water Supply

Oftentimes the availability of a water supply, considering both quantity and quality, decides the location of industries. South Carolina is a state favored by "the gentle rain from Heaven." It has a regular and average supply of 48 inches of rainfall annually which supplies the four river drainage basins of the state, namely the Pee Dee, the Santee, the Edisto and the Savannah. The Santee River Basin alone drains 5,300 square miles in North Carolina and 10,400 square miles in South Carolina, and a population of 1,378,000 depend on it for water. About five and one-half million cotton mill spindles are located in this basin, comprising over one-half the total number of spindles in North and South Carolina, and nearly one-fourth of the total of the United States.

There is an abundance of soft surface waters from the streams in all parts of the state. At the Pinopolis Dam of the Santee-Cooper project there is available three hundred million gallons per day. Luckily for what eventually developed as war needs in the Charleston area, the city some years ago provided for an additional fifty million gallons per day which is brought from the Edisto River by tunnel, 30 miles to its destination. It was a bold engineering feat to chisel out of the rock known as the Cooper

Marl, 60 feet below the surface of the ground, a six foot diameter tunnel. It was unlined, but the water and air soon provided its own case hardened lining which has unfailingly and faithfully delivered its full quota of water every day where it is most urgently needed by shipyards, war industries and a more than doubled population.

The underground water supply, available through the medium of artesian wells which underlie the Coastal Plain is, to a great extent, in reserve for future use. Many small towns draw on these wells for their supply, and this great reservoir that lies below the surface is there to be tapped when needed, or as convenience dictates. Sixty of the larger cities and towns of the state receive their water supply from surface streams; 106 of the smaller communities draw from their ground water supply through the use of artesian wells and only three of them need to use softening agents. Farther south along the Atlantic Coast, industries draw more heavily on their underground supplies, but the large amount of surface waters available from streams in South Carolina is estimated to take care of industrial requirements until development has reached a greatly increased pace.

## Health and Climate

The very good year round climate of the state is conducive to good health. Winter resorts, especially at Aiken, Camden and Charleston, have been famous for a long period. Summer resorts are numerous and extend from the mountains to the many beaches. Extremes of temperatures, drought, or rainfall are of short duration.

The Public Health Program is under the control of the State Board of Health. This Board has full

powers in any health emergency affecting the state. County Health Boards are largely supported by state funds or Federal and administered by the state and are under direct supervision of the State Board. They administer a county-wide program with their own personnel and with specialists in various fields from the State Board. Most of the larger cities have their own Boards of Health and are free from interference in their programs. They receive hearty co-

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Clinics



operation from the State of South Carolina.

The State Board has established the following divisions, the facilities of which are available to all health units. All of these divisions are well integrated.

Administration  
Hygienic Laboratory

Vital Statistics

Rural Sanitation and County Health Work

Maternal and Child Health

Venereal Disease

Preventable Disease

Crippled Children

Industrial Health

Dental Health

Cancer Control

The Division of Administration is divided into several departments which supervise sewerage and waterworks, milk and dairy products, shellfish, and the sanitation of canning industries. Also, included in this division is the supervision of abattoirs, food handling establishments, and the distribution of diphtheria antitoxin, smallpox vaccine, and other biological products. Public Health Education is also a vital and important part of the work of this division.

Malarial control has reached a high level of efficiency. Through blood smear surveys of grammar school children, the endemic foci were shown. Drainage programs have been expanded and, where necessary, application of larvicides to water surfaces have been made. Complete cooperation between the State, United States Public Health Service and Army and Navy personnel in camp areas has resulted in low infection in the armed forces of this area.

Clinics for crippled children are held at six

strategic points at regular stated intervals. These clinics are in charge of orthopedic surgeons. The South Carolina Convalescent Home for Crippled Children is maintained in Florence County. In connection with the crippled children work, clinics for those cripples with heart conditions are also conducted.

Clinics for the diagnosis and treatment of cancer are conducted at convenient points through cooperation of the Division of Cancer Control, local hospitals, and private specialists.

Venereal clinics are established at 134 sites and one mobile unit serves thirty-three sites. These clinics are primarily concerned with diagnosis, treatment, epidemiology, and general education. Free venereal drugs are distributed through county health offices to clinics and private physicians for use by anyone regardless of financial status. Through cooperation with the United States Public Health Service and under the provisions of the Lanham Act, three Quarantine Hospitals have been established with a total capacity of 435 beds. One of these is designated as a "rapid treatment center." These were designed for the treatment of venereally infected contacts of members of the armed forces, as well as other infected persons voluntarily requesting treatment.

A Pre-School, School, and Prenatal dental clinic program is carried on through the state. Emphasis is on the betterment of mouth health among the elementary school age children.

Prenatal, Postnatal and Well-Baby Clinics are held throughout the state by County Health Officers aided by the State Department and in cooperation with local physicians. During 1942-43, 1,233 Well-Baby Clinics with a total attendance of 17,146 were conducted.

Cheese and Milk Plant



The Division of Industrial Health is playing a more and more important part in the industries of the state in answering technical problems of manufacturers, furnishing facilities for the studies of hazardous chemicals and operators, protecting the health of the workers, and giving lectures on safety engineering, industrial health and eye-sight to interested groups.

The state has been very active in the diagnosis and treatment of tuberculosis. During the year, eighty-five clinics of two to three days duration have been held in forty-one of the forty-six counties. A mobile X-Ray unit has borne the brunt of this work. A state tubercular sanatorium of five hundred and fifty beds is maintained near Columbia.

The Division of Vital Statistics shows that from 1940 to 1943, the birth rate increased from 23.9% to 24.8% and the death rate declined from 10.8% to 8.9%.

Through the Division of Rural Sanitation and County Health work, the rural areas of South Carolina have been extended all of the facilities of the various divisions. This Division of necessity is a co-ordinating center for all divisions in that it deals with the County Boards. South Carolina law states that the State Board of Health "shall be the sole adviser of

the state in all questions involving the protection of the public health within its limits." It further states "That the funds appropriated for aid to County and District Health work shall be used by the State Board of Health in carrying on suitable health work in each and every county in the state, through County or District Health Departments." Through this work, general sanitation, including examination of water supplies, proper sewage conditions, and general preventive medicine, and health care for the indigent is provided. Personnel of the County Offices and State Divisions are trained in public health methods. All county physicians, sanitary officers and nurses are trained through courses in attendance at schools of Public Health. The annual report of the State Board of Health, in extending thanks to the cooperation of many non-state supported agencies, such as the Society for Crippled Children and the South Carolina Tuberculosis Association, gives due praise where it truly belongs when it states that "it is due to the understanding and desire of the members of the Legislature to see that their people are safeguarded by appropriating reasonable sums of money, which has resulted in this complicated but fairly complete health service to our people."

Breeding Field for Coker's Pedigreed Tobacco





Fishing on the Pee Dee River

## South Carolina - Vacationland

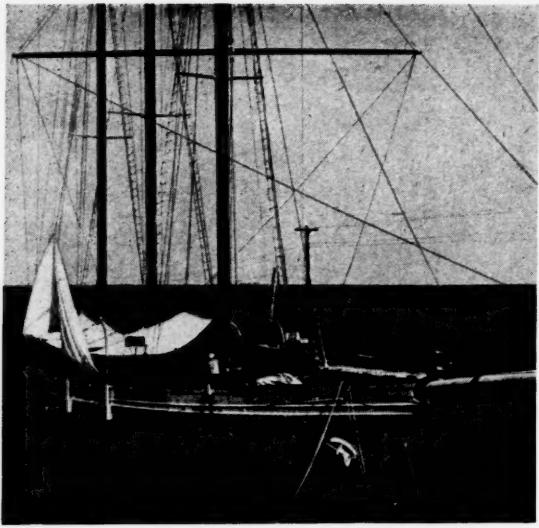
The entire range of climate, of scenery, of topography and of outdoor sports was provided by a beneficent nature when the State of South Carolina was formed. From the Blue Ridge Mountains in the northwestern part of the state the topography grades into the Piedmont Plateau which has elevation sufficient to produce a rolling, hilly country with rivers and streams flowing over water-falls and rapids to produce much of the power used in the state and, incidentally, good fishing, hunting, boating and camping. This higher level of the state is literally dotted with power developments which mean dams and lakes and ponds. There are eighty-seven such projects in the state and, with the exception of the Santee-Cooper lakes, they are all north of the Sand Hills in the Piedmont Plateau and are all natural summer playgrounds. Some of the lakes that have been formed, such as Lake Murray, Lake Greenwood and Lake Catawba, all in the "high country," are large and beautiful waterways and camping sites.

However, the largest of the lakes in the state—man-made—is in the Coastal Plain with its main dam located only a few miles from the coast. This is

the Santee-Cooper Project made up of Santee and Pinopolis Lakes and consisting of 160,000 acres open to fishing and 86,000 acres available for duck and geese shooting.

South of the Sand Hills the Coastal Plain and the Continental Shelf together form a part of the Atlantic Plain which extends along the Eastern Seaboard of the country and seaward to the edge of the Continental Mass, where the comparatively shallow water drops off into the ocean deep. The Coastal Plain of South Carolina varies from 120 to 150 miles in width and the adjoining Continental Shelf is nearly as wide. This expanse of Coastal waters which covers the Continental Shelf, constitutes a great sea fishing ground, abounding in the larger sea fish farther out: the prolific Blackfish banks about thirty miles off the coast; the sea bass from these banks to the shore—notably adjacent to Winyah Bay; and shrimp, oysters, crabs and the myriad forms of crustacea and fish that abound in these waters.

State and national parks, forests and wildlife refuges are scattered throughout the state. There



are forty-four national parks, forests, wayside areas and refuges and twenty belonging to the state. Practically all except the national forests are administered by the Park Service of the Forestry Commission. These parks are notable for the beauty and convenience that has been provided. They are equipped with cabins for rental in the season, bath

Charleston Garden Gate



houses, barbecue pits, rustic tables and cooking facilities, all available to whoever comes to enjoy them. If a mountain resort is wanted, there is Oconee, Table Rock, Paris Mountain, King's Mountain and others. If the pleasures and relaxation of the sea and sand and salt air is desired, there is Edisto, Hunting Island, Myrtle Beach and, if the same facilities are more convenient nearer home, they will be found scattered throughout the state, all within easy reach and so located that any one can be reached within fifty miles of any locality or section of the state.

Some visitors like to drive around through the state—we are speaking of normal peacetime—examining the shrines and monuments of historic interest which exist on every side in almost every nook. One hundred and ten are listed in "Parks and Recreational Areas of South Carolina"—King's Mountain, Musgrave Mill, Ninety-Six, Eutaw Springs, Bowling Green, battlefields, birthplaces or homes of Andrew Jackson, Sumter, Calhoun and other noted sons and many other historical points of interest.

An important factor in the conservation of game and timber is the ownership of the 260 plantations scattered along the coast and a few up-country. These include the famous plantations of the Old South, heralded in song and story; most of them bought up by people wealthy enough to rehabilitate them. Their forests and fields and marshes have been reclaimed and, under proper management, the stands of longleaf pine and the wildlife of the region are thriving. Deer have become so plentiful that they often become a pest. The wild turkey and the quail have multiplied in the timber thickets and the old fields and protected marshes and ponds well stocked with wild rice and other foods have brought back the duck and geese.

National and State services are providing the same sort of supervision throughout the state and together with the plantations of the coast, the Fish and Wildlife Services, the Park and Forestry and Soil Services, National and State, the life of out-of-doors is being made to fully take advantage of what nature has provided in a kindly climate.

A fine system of roads has been built. Paved highways cover all main routes and secondary roads reach into every nook and cranny of the State.

The aviation gridiron of the state is being designed to afford airfield facilities within twenty miles of any point in the state and fifteen miles of most of them. The majority of such fields are now in existence and await only the transfer to the state agency when no longer needed by the military services.

For the student of science, the mysterious craters of the Carolina Coast afford the opportunity for a summer's study and conjecture. Throughout the whole coastal plain of the state, these oval "bays" occur in great numbers, hundreds—perhaps thousands—and all lie in the same axis, same shape, same formation, all pointing in the same direction. They differ only in size. Some scientists claim they were caused by a tremendous shower of meteors; others dispute the claim. At any rate, not a single meteorite has ever been found in or near any one of the craters.



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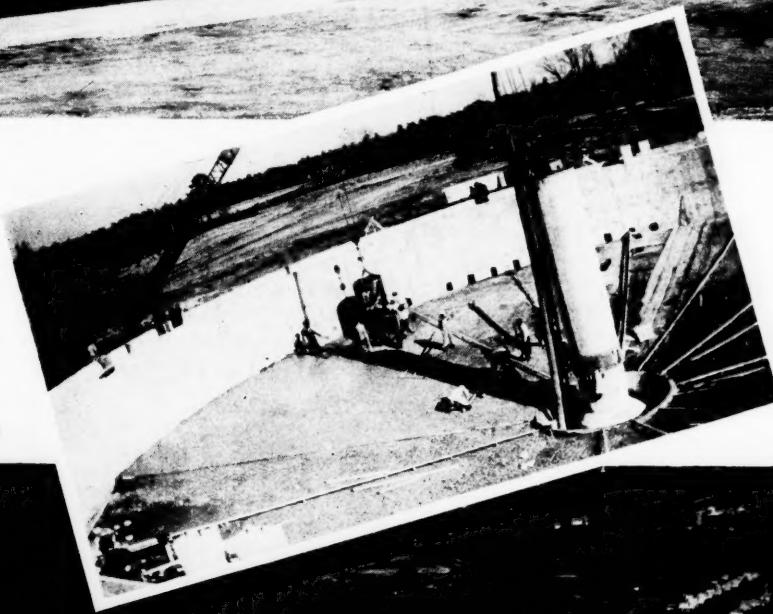
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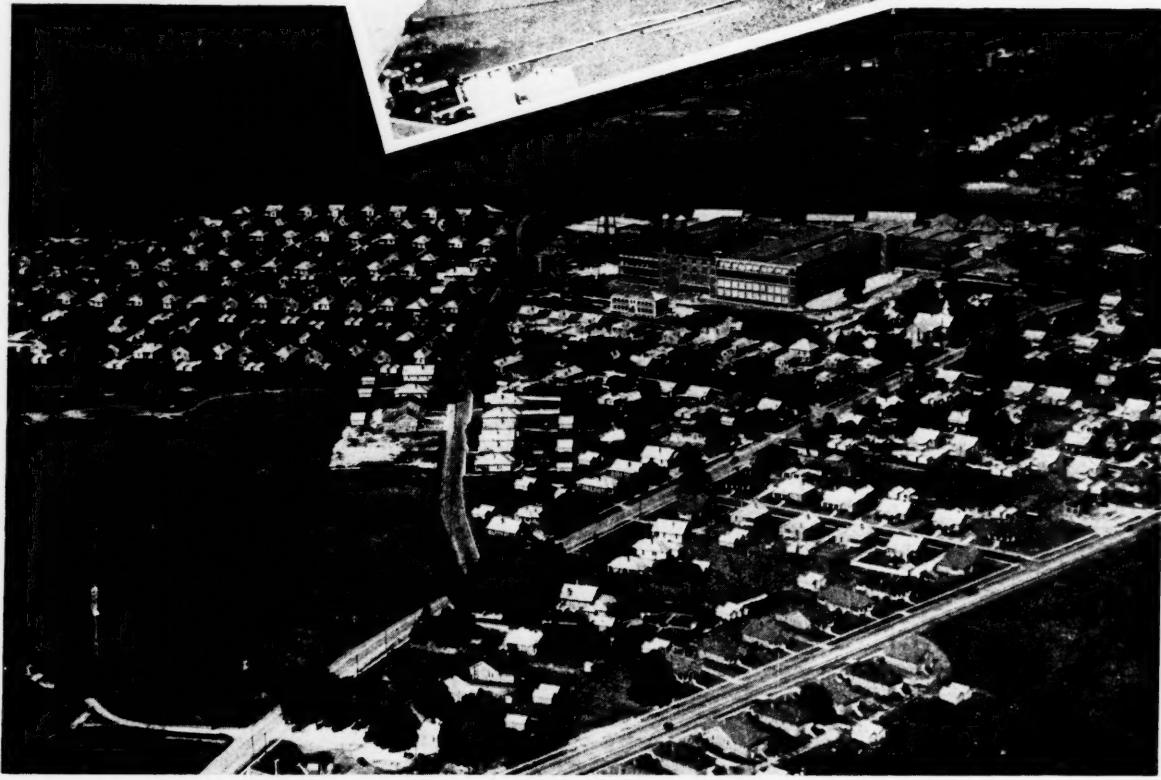


Above—Shirt Factory

Right—Alumina plant under construction.



Below—Cotton Mill and Village



# South's Construction Rises to \$71,884,000 in April

By

Samuel A. Lauver

*News Editor*

**SOUTHERN** construction in April reached the highest point so far this year when the value of contracts let for projects in the sixteen states below the Mason and Dixon line, as reported to the *Manufacturers Record*, totaled \$71,884,000.

The aggregate of Southern contracts for the first four months is \$269,368,000, or practically the same as the total for the similar period of 1940, as the country's defense preparations and the military construction program was swinging into what later became the greatest effort of its kind in history.

Substantial increases in airfield con-

struction, coupled with rises in residential work, highway activity and public building were mainly responsible for the advance made in April as compared with the contracts awarded for Southern projects during the preceding month.

Engineering construction, which includes the booming airfield program, is now at the highest point since last June. The \$31,350,000 total includes \$29,981,000 for earthwork and airports, \$1,357,000 for sewer and water construction and a negligible amount for rural electric work.

Private building, as compared with the preceding month, moved ahead to \$3,921,-

000, an increase of fifty per cent due in large part to the renewed activity in private residential construction. Public housing, on the other hand, dropped precipitously from \$8,109,000 in March to \$3,519,000 in April.

Public building, other than housing, rose in April. The \$14,260,000 total for the month was almost sixty per cent above the figure for this type of construction in the preceding month. School building was lower.

Highway and bridge construction almost tripled. The rise in this field during April pushed the total to \$9,433,000, the highest level for road work since last October. The aggregate so far this year is \$22,464,000.

Federal authorities last month announced a decision to exclude highway construction under jurisdiction of Federal, State or other government agencies from the provisions of Conservation Order L-41. A special order has been issued to apply specifically to such work.

Industrial construction contracts during April fell. The total was \$8,731,000, as compared with the \$28,559,000 of March. Despite the apparent curtailment of such work, industrial construction is proceeding on an encouraging scale at numerous southern points.

Several interesting textile expansions were made public during the month. One of these was a \$1,000,000 expansion of the Opelika Mills at Opelika, Ala. Another is a \$1,250,000 plant to be built at Decatur, Ala. under a Defense Plant Corporation contract with Goodyear Decatur Mills, Inc.

A new southern development in the rayon tire cord situation occurred. The Defense Plant Corporation closed a contract with the United States Rubber Co. for erection of a \$2,240,000 mill at Scottsville, Va., for producing the much needed reinforcement material for synthetic rubber tire manufacture.

The new project will climax a previously announced program under which three southern rayon manufacturers were ordered to expand operations to raise the nation's production of high tenacity yarn to 41,000,000 pounds annually. New facilities for the purpose are being established at Front Royal, Va., Enka, N. C., and Amphiell, Va.

Lone Star Steel Co., Texas concern which recently shipped its first commercial coke, negotiated a contract with the Defense Plant Corporation for additional facilities to cost \$400,000. Texas City Tin Processing Co., another pioneer Texas industry, let the contract for new facilities. Sheffield Steel Co. contracted to build new loading docks.

First evidence of the drive to increase alcohol production became apparent with Kentucky and Maryland manufacturers making additions. General Distillers Corp., Louisville, consummated a \$135,000 contract with the Defense Plant Corporation for additional equipment. Cummins-Collins Distilleries, also of Louisville, closed a \$160,000 contract. Baltimore Pure Rye Distilling Co. made the award for a dryer building at Dundalk, Md., and Carrollton Springs Pure Rye

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## South's Construction By Types

	April, 1944		Contracts Awarded	Contracts Awarded
	Contracts Awarded	Contracts to be Awarded	First Four Months 1944	First Four Months 1943
<b>PRIVATE BUILDING</b>				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$571,000	\$1,443,000	\$1,148,000	\$329,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	230,000	310,000	544,000	323,000
Residential (Apartments, Hotels, Dwellings)	3,100,000	2,276,000	20,863,000	16,881,000
Office	20,000	65,000	44,000	20,000
	\$3,921,000	\$4,094,000	\$22,599,000	\$17,753,000
<b>INDUSTRIAL</b>	\$8,731,000	\$17,650,000	\$60,839,000	\$107,654,000
<b>PUBLIC BUILDING</b>				
City, County, State, Federal	\$14,260,000	\$35,025,000	\$52,812,000	\$182,587,000
Housing	3,519,000	3,464,000	23,630,000	96,027,000
Schools	670,000	7,518,000	3,110,000	4,755,000
	\$18,449,000	\$46,007,000	\$79,558,000	\$283,369,000
<b>ENGINEERING</b>				
Dams, Drainage, Earthwork, Airports	\$29,981,000	\$10,084,000	\$75,974,000	\$100,891,000
Federal, County, Municipal Electric	12,000	725,000	241,000	1,877,000
Sewers and Waterworks	1,357,000	12,218,000	7,693,000	13,382,000
	\$31,350,000	\$23,027,000	\$83,908,000	\$116,150,000
<b>ROADS, STREETS AND BRIDGES..</b>	\$9,433,000	\$14,467,000	\$22,464,000	\$39,090,000
<b>TOTAL</b>	\$71,884,000	\$105,245,000	\$269,368,000	\$564,016,000

## South's Construction By States

	April, 1944		Contracts Awarded	Contracts Awarded
	Contracts Awarded	Contracts to be Awarded	First Four Months 1944	First Four Months 1943
<b>Alabama</b>	\$3,811,000	\$3,948,000	\$19,716,000	\$19,525,000
<b>Arkansas</b>	201,000	984,000	1,004,000	21,595,000
<b>Dist. of Col.</b>	2,937,000	505,000	10,316,000	3,552,000
<b>Florida</b>	9,763,000	10,348,000	36,376,000	74,457,000
<b>Georgia</b>	3,338,000	6,311,000	13,339,000	39,125,000
<b>Kentucky</b>	529,000	887,000	3,226,000	13,829,000
<b>Louisiana</b>	4,482,000	16,008,000	19,421,000	15,115,000
<b>Maryland</b>	6,307,000	3,996,000	19,769,000	44,850,000
<b>Mississippi</b>	492,000	1,339,000	4,040,000	15,519,000
<b>Missouri</b>	6,803,000	9,704,000	10,713,000	9,723,000
<b>N. Carolina</b>	2,000,000	3,764,000	8,075,000	17,535,000
<b>Oklahoma</b>	1,505,000	2,956,000	12,249,000	14,903,000
<b>S. Carolina</b>	2,389,000	7,553,000	8,534,000	20,786,000
<b>Tennessee</b>	3,067,000	2,165,000	9,523,000	33,170,000
<b>Texas</b>	8,897,000	30,009,000	48,116,000	178,266,000
<b>Virginia</b>	15,086,000	4,252,000	35,618,000	35,449,000
<b>W. Virginia</b>	277,000	516,000	9,243,000	6,617,000
<b>TOTAL</b>	\$71,884,000	\$105,245,000	\$269,368,000	\$564,016,000

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OR

# The Charleston & Western Carolina

## — a South Carolina Railroad

By

R. P. Jobb

Manager

Development Service,  
Atlantic Coast Line Railroad

IT has only 342.5 miles of main track and in the family of railroads that often measure their miles by thousands the Charleston & Western Carolina would be termed a small railroad.

Yet no railroad has equalled some of the records that it has hung up and no railroad has more completely illustrated the way the steel rails that bound the country together in the days after the Civil War are carrying victory freight in this one in one of the most remarkable achievements of American life.

The Charleston & Western Carolina, which incidentally is a South Carolina institution, like so many other roads, never realized the ambition of its founders in that its tracks have never reached Charleston, though its South Carolina charter requires it to meet there and each April its officers gather for the annual accounting of the past year of its story of transportation.

At one end its terminus is Port Royal. When the C. & W. C. was built into Port Royal as the old Port Royal and Augusta back in March of 1873 its backers had the idea of making that landlocked harbor on Port Royal Sound, hard by the place where the Frenchman Ribault established his settlement of Huguenots in 1562, one of the great ports of the Southeast.

For a time, there was a naval station at Port Royal, built when the Federal navy was using the sound as an operating base in the Civil War and kept there until Charleston Navy Yard became the workshop of the fleet in this section of the country.

But the dream of a great port never came true. Instead, this end of the C. & W. C. has become one of the most interesting and romantic of the National Defense installations in the United States. Across the sound from the C. & W. C. terminal is Parris Island, where the boys of America are turned into fighting Marines. Each month

thousands of green, awkward, nondescript men from all over America are hauled into this station and carried across to the "boot" camp on Parris Island. Each month the C. & W. C. hauls them out again—no longer green and awkward but now the men who shoot straight and clear and the men who have been the bellwether of the American recovery from Pearl Harbor to this day when the armada, the air fleets and the land troops of the United States are hurling back the foe into certain defeat.

Thus Port Royal, where the C. & W. C. touches salt water, is one of the several places in America where Marines are made from the raw material of American youth. And over the rails of the C. & W. C. and over these rails alone flow the trains that bring to this great base its men and its supplies for this gigantic task.

Thus that shattered dream of a great port which the builders of the first unit of C. & W. C. had has been realized in a great war installation.

The Augusta and Port Royal was one of the five little roads which were built by the men of the South in the days following the Civil War—built out of the faith of the nation in the future of the South. There was the Augusta and Greenwood, built out of Augusta, Ga., to Greenwood, S. C., then a wide spot in the road. It was built with the idea of extending it on to Knoxville, Tenn., and bridging a wide gap between the East-West crossings of the Alleghany Mountains where at that time only the Western and Atlantic railroad, running from Atlanta to Chat-

tanooga, Tenn., and the Norfolk and Western running from Lynchburg to Bristol, Tenn., crossed the great ridge that divides the Mississippi Valley from the Atlantic seaboard.

The founders of the Augusta and Knoxville had the idea of using a tunnel started early in railroading through Stumphouse Mountain, near Walhalla, S. C., and abandoned when the money ran out. This dream, too, never came true and a few years ago the man-made cave that old Stumphouse tunnel had become, was turned by the South Carolina College of Agriculture at Clemson, S. C., into a factory where cheese like France's Roquefort is aged.

Instead, the Augusta and Greenwood was joined to another line, the Greenwood, Laurens and Spartanburg, which reached Spartanburg about 1885.

Meantime, local interests had pushed other short lines—the Savannah Valley Railroad, from McCormick, S. C., on the present C. & W. C., to Anderson, S. C., and the Greenville and Laurens, and thus they operated until 1896 when all were bought in by a new company, the Charleston & Western Carolina.

It was then that the story of the railroad really began as a unified operation.

From that day to this, every day in the year, service has been maintained along the Savannah River Valley section of South Carolina. From an isolated group of small lines, serving local interests and going broke at intervals, the road has become part of a great family system which covers the entire Southeastern United States like a vast steel network. As part of the great Atlantic Coast Line Railroad family, the C. & W. C. serves a double mission. It is the vital cross-connection from Florida to the Mid-West, bringing the coal of Southwest Virginia, Kentucky and Tennessee to the users in the Southeast and the fresh fruits and vegetables of the

(Continued on page 138)

# South Carolina's Outlook

CHARACTERISTICS similar in nature to those which would prompt the statement, "that man will go far in life," may also be found in enterprising communities, cities, states, and nations.

The man whose future is so prophesied will, no doubt, possess a background of personality, health, environment and fortitude. A community or state to succeed commercially must also have a citizenry with the heritage of a fighting spirit tempered with culture, attractive scenery, substantial and sound business legislative and tax policies. It should be well located with regard to markets and be possessed with a "never say die" spirit on the part of its citizens.

South Carolina, one of the thirteen original states, has all of these valuable attributes. Its first settlers were men and women of rugged character. They established homes in the American wilderness and hewed for themselves a civilization that was advancing with great strides even before the War of the Revolution. The descendants of these early settlers bore their share of the fighting to throw off tyrannical rule, and with the victory sent their leaders to join with the representatives from other colonies to found the greatest government ever established.

The attractive physical features of the state from its mountains to the seashore are unsurpassed. Its rich soils, geology, forests, rivers, harbors and equable climate, combined with a liberal legislative and tax policy and a location which enabled easy access to dense domestic and foreign markets, all contributed to early development by its enterprising and intelligent citizens of a great agricultural and industrial empire.

From pre-Colonial days, South Carolina citizens have been bold and enterprising. Here early trade centered chiefly around the port of Charleston. The rapidly expanding rice and indigo culture, together with a growing commerce with the rest of the country and foreign nations, supplied in those early days

By

Dallas T. Daily

*General Industrial Agent  
Seaboard Air Line Railway*

the economic basis for a society of intelligence and culture.

Following the War of the Revolution and until 1860 the energy and enterprise of her citizens had elevated the South to the nation's chief producer of corn, cotton, tobacco, rice, potatoes, sugar, vegetables and livestock. The South led the nation in manufacturing during the Eighteenth Century, and South Carolina produced her share. In the Piedmont area iron foundries as well as other manufacturing plants flourished. Many of the gun barrels borne by the soldiers of the Revolutionary armies were made in the vicinity of Greenville, S. C., and here manufacturing plants were making such strides that Lord Cornwallis, the British General, invaded South Carolina through the Port of Charleston in an attempt to weaken the colonies by destroying the state's manufacturing establishments and commerce. After the Revolution agriculture and industry again flourished. One of the first steam railroads in the United States was constructed in South Carolina. The first steam locomotive built in the United States was for a South Carolina railroad. A native of South Carolina, while residing in Florida, invented the first ice manufacturing machine. By 1860 South Carolina, as a result of her commercial program, ranked third in per capita value of assessed property, outdoing such rich states as New York, Pennsylvania and New Jersey.

In 1860 the South's lumber production was twice that of the rest of the nation and the country's cotton crop with South Carolina taking a prominent role was entirely produced in the South. The conflict between the states brought disaster that required years for recuperation,

but with the same spirit of prewar days the returning soldiers and their sons began a commercial trek that by the turn of the present century was beginning to again reach enormous proportions.

The new century early saw great development of water power in South Carolina, the expansion of its railroad systems, improvement in her schools and the construction of new homes. These facilities with the added attraction of adequate, cooperative, intelligent and loyal American labor drew textile manufacturers to the Piedmont area, more lumbermen to her forests and farmers to her rich soil.

By the late thirties, the bulk of virgin timber suitable for saw milling had been cut, but a new interest in the forests was created by the coming of pulp and paper mills to the South. As a result, nationwide interest has been revived in one of our greatest of raw materials, the Southern pine tree. Volumes have been written but we have only begun to tell its story. From its chief component, cellulose, products of many varieties can be made.

Many who are industrially minded think only of the pine tree as a component in the manufacture of pulp and paper, but the cellulose from its trunk is probably the most widely used raw material in the world today. Other states have their mineral deposits, which when depleted are gone forever, but the pine tree can be grown in a generation. Sad to relate, however, it has been neglected and abused, for after the saw timber had been cut what incentive had an owner to protect second growth timber when no market existed? As a result fires and destructive cutting laid waste what remained, but the situation is changing rapidly. A market has now begun to be created through the development of new products. This most abundant and most wasted raw material in the world is likewise one with the widest range of potentialities.

This is a cellulose age. A large portion of the pine tree is cellulose. The South occupies a most fortunate

position for no region under the sun possesses comparable wood resources so near to a large consumer demand. Prior to the present war the paper industry utilizing the pine tree had already gained a strong foothold in the south and in South Carolina. We have mills making the coarser kind of papers for wrapping and conversion into bags, paper board for containers for the packaging of nearly every kind of commodity. It had already been established that newsprint as well as a very excellent quality of white cellulose pulp could be made from the Southern pine tree. This pulp has had a limited use in the manufacture of rayon, in the better qualities of white paper and to some extent in plastics. Only in recent years under the stress of necessity has it been proven conclusively that plastics made from wood cellulose will stand the enormous strain and vibration set up in airplane bodies, automobile bodies, boats and airplane propellers. A wood substitute for steel has been created which is not only lighter but stronger. The possibility exists that great cargo planes will soon be fabricated of compressed paper with the strength of light steel and one-half the weight of aluminum. There is a growing demand for high cellulose wood pulp in the manufacture of flexible glass, trunks, luggage, receptacles of all kinds, gun stocks, furniture, radio cabinets, insulation, automobile steering wheels, decorative and advertising novelties, lenses, toilet articles, refrigerators, rayon, plastics, cellophane, artificial wool, films, lacquers and kindred products. The possibility also exists that the whole field of synthetic materials may be dominated and expanded still further by plastics made of cellulose from the southern pine tree.

Building material from cellulose and pressed wood generally classified as hardboards have been used for many years, but under the stimulus of commercial necessity constant improvement has been made to the point where their weather resisting qualities are very superior to the best grade of commonly used building materials.

As a further example of what can be done when necessity requires, some of our enemies in this war cut off from outside supplies of certain

commodities are clothing their soldiers in fabrics made from wood. They are living on wood sugar, wood proteins and meat and cheese from wood fed cattle. With a schnapps ration made from grain alcohol obtained from sawdust, these soldiers are moving to the battle lines in wood gas driven trucks, greased with tree stump lubricants and run on Buna tires made from wood alcohol.

Thus we find that the use of wood cellulose is expanding at a remarkable rate. Its ramifications extend into scores of products which form the basis of many of our most important industries. Wood cellulose is being used commercially for almost every human need. What has already been done will be surpassed, and with our enormous timber resources this can be done in the South and in South Carolina. Think of factories in South Carolina producing all of these things and visualize what a mighty industrial empire can be built from the pine tree alone.

During the past few years more progress has been made in the advancement of sound forestry practices than ever before, but the South will not let up. Our people and our southern legislators are doing everything possible to promote reforestation of denuded lands and the protection of our forests from fire. A properly managed program for the protection and growing of pine trees is being rapidly shaped and put into execution and the time is not far off when we will see industries producing those items already mentioned and many other products

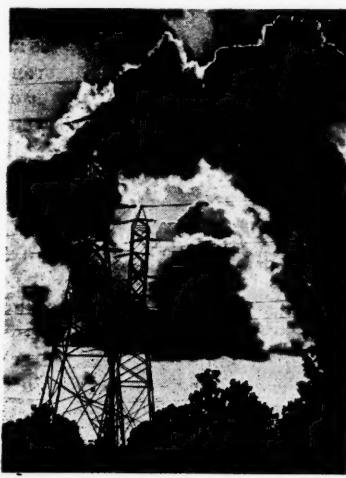
as well. In addition we shall see the revival of the saw mill industry. Perhaps not on the old basis when so much of the log went to waste in the form of slab wood and sawdust, but we will get our lumber and use everything inside the bark, and possibly the bark also. With her enormous forest resources and the spirit of her people, I predict that South Carolina will play a most important part in this tremendous development.

We need not necessarily confine our endeavors to pine tree products alone. With South Carolina's enormous natural resources and soil, supplemented by the energy of her resourceful citizens, one can visualize in the future the conversion of large areas of waste lands into pastures for the grazing of livestock, followed by the establishment of packing houses. As a result of these operations there should be a plentiful supply of hides, and plants will be established for the production of shoes and other items from leather. Dairying has become a strong commercial factor in South Carolina. We already have plants for the production of butter, cheese, ice cream and canned milk. These operations will, no doubt, be expanded and large quantities of dairy products will be shipped to all parts of the country with possibly a surplus left over to be used in the manufacture of fabrics from casein.

South Carolina is already growing large quantities of fresh vegetables and fruits and along her extensive seashores a vast fishing industry is being carried on. Possibilities exist for a greater increase in the canning and freezing of fresh vegetables, fruits and fish.

Manufacturing plants of the state are now turning out a wide variety of products including asphalt, bakery goods, baking powder, brick, tile, beverages, chemicals, clothing, fertilizer, flour, food products, furniture, mattresses, vegetable oils, ships, cigars, creosoted timber, cement, auto batteries, hosiery, garments, and from the mines of the state are coming granite, clays, silica, limestone, building stone, crushed rock and gravel. Other things to which the manufacturers in South Carolina can turn their attention when the war is over and we

(Continued on page 148)



# The Southern Serves the South

THE Southern Railway Company Directors, in submitting to stockholders the fiftieth annual report of the system, make the following statement in the foreword of the report:

"The experience of 1943 justifies repeating the admonition in the Report for 1942 as to the temporary character of wartime earnings, and a stronger emphasis upon what may probably be more permanent, namely, the increased and constantly increasing burden of expenses and taxes with their inevitable depressing effect upon net earnings. As will be shown in this Report, the Company's accomplishment in reducing fixed charges is noteworthy, but, unfortunately, must be contrasted with the uncontrollable increases in wages, taxes and the cost of materials."

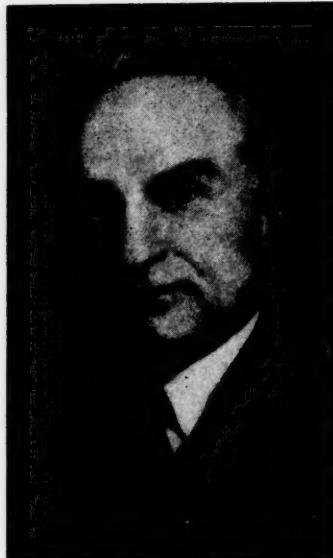
The revenue from 1943 operations was 20 per cent more than the previous high record of gross revenues made in 1942. The total reached last year was \$245,532,051. In contrast, the report points out that in 1926, "the peak year of the prosperous twenties," gross revenues were \$155,467,000, and in 1932 at the depth of the depression the gross fell to \$72,986,000.

Both freight and passenger revenue contributed to the present high bracket. Freight revenue was 10.32 per cent higher, while passenger revenue increased 59 per cent over 1942.

Against this showing of receipts and bearing out the preceding reference to constantly increasing expenses and taxes, the report shows that railway tax accruals, including those for excess profit taxes, amounted to \$70,437,236, or 69.78 per cent more than in 1942. This was equivalent to nearly 29 cents out of every dollar of gross revenue.

The report contains a breakdown of what happened to each dollar of revenue, and while space does not permit going into this in detail, the result is total expenses and taxes out of each dollar received is 84.32 cents.

After deducting operating ex-



Ernest Norris

## *Southern Railway report reveals seventy-one industries established along its lines last year*

penses, which included materially increased wages, and after taxes and equipment plus joint facility rents, there was left "but 14.56 cents out of each dollar of operating revenue to meet fixed charges, finance capital improvements, buy new equipment, retire debt, lay by a small reserve for rainy days, pay a modest return to the owners of the property, and for the numerous and necessary corporate obligations of every other kind."

Notwithstanding the shortage of manpower and difficulties in securing new equipment until late in the year, while faced with the extraordinary volume of freight and passenger demands, operations were con-

ducted with such safety that last year showed the lowest percentage of casualties per train mile in the company's records.

The report is an interesting document not alone because of the details it gives of the financial affairs of the railway, but the evidence it bears of successful operation by private industry under conditions of the demands of war, the increasing needs of Southern freight shippers due to Southern development and the consequent stress placed upon management and employes and upon the operating plant.

Industrial conditions are described in an interesting section of the report. This pointed out, while there was a decline in the number of new military installations constructed in 1943 in the South, mobilization of industry for war reached a new peak.

The report says further that in nearly every field of industrial activity, and particularly in the iron and steel industry of Alabama, together with the aluminum industry in Alabama and other states, new all-time high records were established.

Pointing out that the cotton growing states, with 75.7 per cent of the total cotton spinning machinery in place, worked 82.7 per cent of the total spindle hours and consumed 9,307,799 bales of cotton, which was 86.5 per cent of the total consumption of cotton in the United States.

The rayon industry increased 5.5 per cent over last year's production.

Five new coal mining developments were started in the Southern's territory.

The gratifying change in agriculture toward greater production of food and feed crops and livestock is mentioned and as evidence of the real progress being made in soil conservation, attention is called to the fact that the railway handled in 1943 650,000 tons of agricultural limestone.

Seventy-seven new industries were established and additions made to 33 existing plants in Southern Railway territory.

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# Jacksonville's Post-War Plan

THE majority of post-war plans ask the business men to forecast such imponderables as: the amount of expected business in post-war years, whether taxes will be lightened or made heavier, whether laws restricting business will be eased or tightened, and many other unpredictable items. The severe periods of prosperity and depression which we always have had in this country are evidence that such predictions have not been too successful.

Is it possible to lay some plans which will be of value regardless whether business goes up or down? Or whether taxes are raised or lowered? The Jacksonville Chamber of Commerce thinks it is, and bases this assumption on its success in aiding local firms to procure war work back in the dreary days of early 1942 when it seemed that many small firms would soon go out of business. It believes that the fundamentals of this same plan can be used in the post-war period with similar beneficial results. This program is particularly adaptable to the South, since the South does not have a preponderance of mass production machinery and therefore has the flexibility to change its manufacturing economy as needed.

The theory behind this post-war program is to collect complete information in a community on all manufacturing potentials — machinery, products manufactured, potential products, floor space, manpower, etc.—so that data is available on products currently manufactured and products which could be manufactured. The value of such information, as well as the mechanics of obtaining it, is best explained by what was done in Jacksonville.

First, a questionnaire was prepared so that all pertinent information would be included. This embodied such items as: make, size, age and tolerances of machines, number of skilled and unskilled employees, square feet of floor space, products manufactured, and capitalization of the company. This information was obtained by personal visits to all the plants.

Then, the information was analyzed. This analysis showed that Jacksonville manufacturing facilities could logically be grouped into six categories: woodworking, machine shop, sheet metal working, boat and barge building, garment making and truck and trailer body building. Master analysis sheets were compiled so that it could be determined instantly whether or not a certain type machine was in Jacksonville and, if so, who had it. From these analysis sheets, lists of items which were, and which *could* be, manufactured in Jacksonville were composed. (See Figure 1.) Now we had a complete picture: manufacturing facilities including personnel, products which had been manufactured and products which could be manufactured. All that remained was to get contracts for some of these articles.

A careful analysis of the manufacturing being done in Jacksonville revealed that some items were purchased from outside sources which could be manufactured locally at a comparable price. Therefore we requested all of our manufacturers to contact us before subcontracting any work to outside firms. The results were exceedingly gratifying. Firm after firm commented in amazement on being notified that the desired screw machine, vertical boring mill, or power brake to do its particular job was available here. In some cases manufacturers were having work done 1200 miles away which could have been done as well, and more economically, in Jacksonville.

This exchange of local work helped considerably, but it did not take up all of our excess capacity. The next step was to sell our facilities to other manufacturers in other parts of the country. Booklets, readable in five minutes, were printed in attractive colors. Since neither woodworking companies would be interested in metal working facilities nor garment manufacturers in boat building, separate booklets were written for each of the six categories previously mentioned; i.e.—woodworking, machine shop,

sheet metal working, garment making, boat and barge building, and cloth manufacturing. Samples of these booklets are shown.

Now we were prepared to sell our productive ability. Names of companies having large government contracts were obtained and were mailed the appropriate booklets, together with a list of the items we could manufacture. Advertisements telling our story were published in *Time*, *Factory Management*, *Manufacturers Record*, *Fortune*, etc., personal calls were made upon procurement agents of various government agencies and on private companies in Washington, Philadelphia, Atlanta and Birmingham. Was our program successful? Well, in less than 9 months Jacksonville went from an area of excessive labor supply (Group IV) to an area of acute labor shortage (Group 1).

The value of this program in the war period has been proven. But will it be of equal value in the post-war period? A brief analysis indicates it will. Aside from the problems which can be handled by Congress alone—and which we should not ignore—the one problem which takes precedence over all others is employment. The consensus is that if 56,000,000 to 58,000,000 persons are employed after the war, the country as a whole will be prosperous. But these people must be employed immediately upon the war's termination. If millions of them must wait months for reconversion and other problems to be thrashed out, public confidence will flicker and wane, with a corresponding deleterious effect on our national economy. However, if the difficult period immediately following the war can be weathered successfully, skeptics will be put to rout and public confidence will bloom.

To communities armed with information of their manufacturing potentials plus a knowledge of what goods and services have accumulated since December 7, 1941, this anticipated stormy period will be but a pleasant interlude to a long, prosperous era.

(Continued on page 134)

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**HELP HIM GET THAT  
LONG DISTANCE CALL  
THROUGH TONIGHT**



You can do it by not using Long Distance between 7 and 10 P.M.  
Those are the night-time hours when many service men are off duty and it's their best chance to call the folks at home.

BELL TELEPHONE SYSTEM



MAY NINETEEN FORTY-FOUR

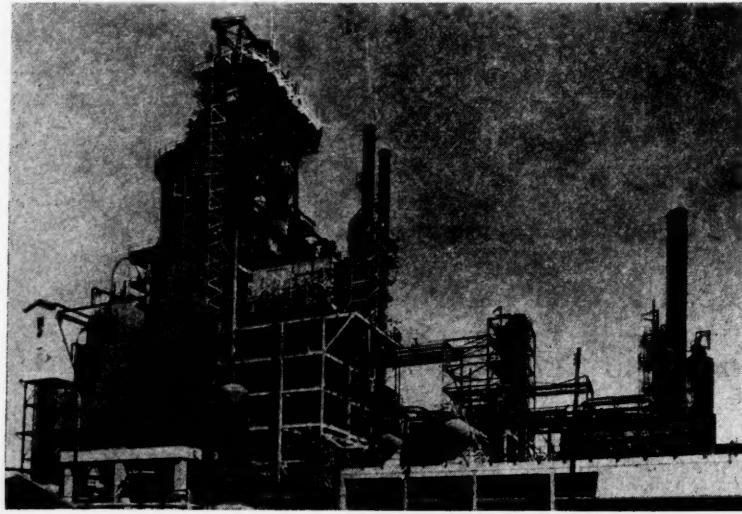
## Pan American Plant Finished in Texas

Recent completion of Pan American Refining Corporation's giant new fluid catalyst cracking unit at Texas City, Tex., is another step in the corporation's long-range program for the refining and manufacture of better petroleum products. Other new facilities included in the new plant include a sulphuric acid alkylation unit, boiler plant to furnish steam, water station, cooling tower, tankage facilities and powerful pumping stations.

Towering twenty stories into the Texas sky, this new installation will produce enough 100-octane gasoline to power a 1,000 4-engine bomber raid from English air bases to Berlin every week in the year. Over 2,000,000 man hours of labor went into construction; more than 10,000 tons of steel were required; concrete used totaled 16,870 tons and 31.4 miles of pipe, ranging from 2 inches to 72 inches in diameter were required.

Butane streams from the plant will be piped to a synthetic rubber plant in Houston, 30 miles distant, where butadiene, necessary in the manufacture of synthetic rubber, is extracted, and the residual butanes returned to Texas City to be converted to 100-octane gasoline.

*Below — Twenty-story fluid catalyst cracking unit, the heart of the plant recently dedicated at Texas City, Texas, by Pan American Refining Corp.*



112

## Southern Industrial Expansion in April

### ALABAMA

**BIRMINGHAM**—Locke Plant — Birmingham Ice & Cold Storage Co. will erect \$100,000 quick freeze locker plant.

**DECATUR**—Plant — Defense Plant Corp. contracted with Goodyear Decatur Mills, Inc., for a \$1,250,000 plant.

**OPELIKA**—Mill Addition — Robert & Co., Atlanta, Ga., Engrs., preparing plans for construction Opeilka mills addition, \$1,000,000.

**MONTGOMERY**—Re-Icing Shed — Barge-Thompson Construction Co., Atlanta, Ga., has contract for re-icing shed in yards of Louisville and Nashville Railroad Co.

### ARKANSAS

**LITTLE ROCK**—Building — Muskogee Iron Works have contract for concrete and steel building for Southern Cotton Oil Co.

**MONTICELLO**—Factory — John L. Cooper, West Memphis, and J. A. Gwaltney, Osceola, acquired canning plant; will operate, probably install a dehydration plant for sweet potatoes.

**PINE BLUFF**—Power Line — Arkansas Power & Light Co., C. J. Lynch, Pine Bluff, has state permit to construct 110 kilovolt line from Lake Village to Woodward Substation; cost \$666,000.

**STAR CITY**—Rural Line — REA allotted funds for farm connection electric lines; \$75,000; C. & L. Electric Co-operative, owners.

### FLORIDA

**BARTOW**—Meat Packing Plant — G. A. Miller Construction Co., Tampa, has contract for construction meat packing plant.

**CLEWISTON**—Plant — United States Sugar Corp., awarding contracts for expansion, West Palm Beach.

**JACKSONVILLE**—Pier Extension — Merrill-Stevens Dry Dock & Repair Co. applied to War Department for permission to extend and maintain an existing pier on East Bay St.

**MIAMI**—Cold Storage — Miami Cold Storage Co. has permit for cold storage plant.

**PENSACOLA**—Laboratory — Newport Industries, Inc., plans research laboratory, \$50,000.

**ZEPHYRHILLS**—Plant — James W. Kerr will erect and operate refrigerating and

meat curing plant in connection with abattoir.

### GEORGIA

**ALBANY**—Peanut Butter Plant — Jewett and Sherman Co., Milwaukee, Wisc., will establish peanut butter plant; buildings to be erected by A. C. Knight, of Albany.

**BARNESVILLE**—Mill — Aldora Mills, W. E. Vecsey, Mgr., constructing brick building to house twister spindles rings and looms.

**BOLTON**—Power Plant Addition — Georgia Power Co., W. P. Hammond, Chief Engr., Atlanta, soon call for bids for work in connection with addition to plant Atkinson; estimated cost of entire project, \$4,000,000.

**DUBLIN**—Radio Station — George T. Morris, owner of Service Coach Lines, plans radio station.

**MARIETTA**—Expansion — Cobb Cooperative Dairies, let contract to Brown-Rogers-Dixon Co., 384 Nelson St., S. W., Atlanta, Ga., for portion of equipment and to Cherry-Burrell Co., 607 W. 5th St., Charlotte, N. C., for additional equipment.

**SANDERSVILLE**—Creamery — Sanders Mercer, Washington County Agent, interested in erection of creamery between Sandersville and Tennille.

### KENTUCKY

**ATHERTONVILLE**—Plant Facilities — Defense Plant Corp. closed contract with Cummins-Collins Distilleries, Louisville, for plant facilities; \$160,000.

**GLASGOW**—Refinery — W. W. Plowman and J. C. Potter, Dallas, Tex., constructing and J. E. Cruise, Salem, Ind., and J. C. Potter, Dallas, Tex., constructing oil refinery east of Glasgow; 1,000 bbl. daily capacity.

**LOUISVILLE**—Additional Equipment — Defense Plant Corp. closed contract with General Distillers Corp., Louisville, for additional equipment; \$135,000.

### LOUISIANA

**BATON ROUGE**—Rural Lines — Dixie Electrification Membership Corp. has REA funds for electric lines; cost \$50,000.

**BOSSIER**—Rural Lines — Bossier Rural Electrification Membership Corp. has REA funds for connection of electric lines for farms; \$50,000.

**FRANKLINTOWN**—Electric Lines — St. Tammy Electrification Membership Corp. has REA funds for electric lines; \$50,000.

**JEFFERSON PARISH**—Timber Wharf — R. P. Lockett, New Orleans, applied for War Department permit to construct a timber wharf and walkway on timber pile foundation in Caminada Bay.

**NEW ORLEANS**—Building — Lionel F. Favret, 937 Gravier St., has contract for extension to truck repair building, tool room, etc., at shipyard plant for Delta Shipbuilding Co., Inc.

**NEW ORLEANS**—Expansion — Rheem Manufacturing Co., enlarging facilities of New Orleans plant, installing high speed production line for steel pails, etc.; \$300,000.

**NEW ORLEANS**—Superstructure — Gervais F. Favrot, Balter Bldg., has contract for plant superstructure for foundry, hammer shop, garage and oil storage building for Higgins Aircraft Corp.

**WINNSBORO**—Electric Lines — Northeast Louisiana Power Corporation, Inc., has REA funds for electric lines for farms; \$50,000.

### MARYLAND

**BALTIMORE**—Addition — Davis Construction Co., 9 W. Chase St., has contract for addition to manufacturing plant for American Can Co.

**BALTIMORE**—Building — Armiger Construction Corp. has contract for building, (Continued on page 116)

## **WHAT ABOUT EQUIPMENT IN POST-WAR DAYS?**

Owners of textile mills are giving a great deal of attention right now to post-war developments. Many are now planning to modernize their plants and purchase new equipment.

First and Merchants is ready to make loans, both short and long term, for

special purposes and will be pleased to discuss with manufacturers their plans and cooperate with them in setting up their loan programs. First and Merchants has had many years' experience in handling the loans of Southern textile mills.

### **FIRST AND MERCHANTS National Bank of Richmond**

John M. Miller, Jr., Chairman of the Board

H. Hiter Harris, President

CAPITAL AND SURPLUS SIX MILLION DOLLARS

Member Federal Deposit Insurance Corporation

## **NATURAL GAS**

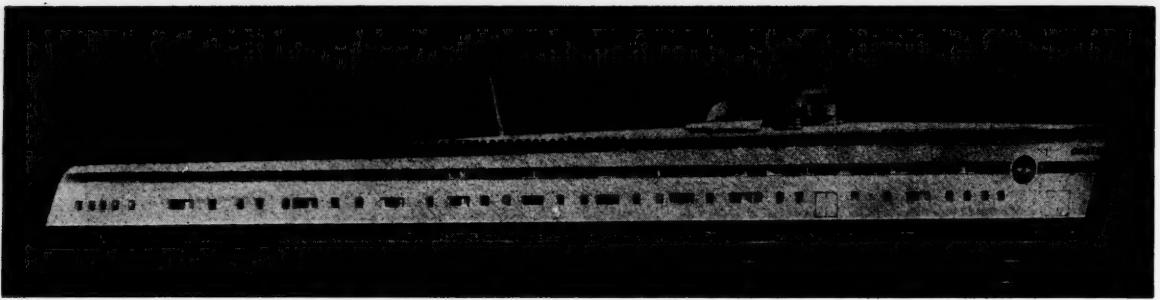
A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

### **SOUTHERN NATURAL GAS COMPANY**

Watts Building

Birmingham, Ala.



## Ingalls Plans Streamlined River Liner

DESIGNS and drawings of the streamlined cruise-liner for Tennessee River travel which the Ingalls Shipbuilding Corporation expects to build at its Decatur, Ala., shipyard after the war have been completed by George C. Sharp, New York naval architect.

The luxurious 300-passenger boat, which would make 1,300-mile round trips between Knoxville, Tenn., and Paducah, Ky., on a weekly basis in the post-war era, is a drastic departure in design from any boats plying the rivers before the war.

Suggested originally by Emmett S. Newton, Chattanooga, Tenn., civic leader, the boat will serve for conventions and afford tourists, motorists and vacationists an ideal way to spend several days enjoying the scenery in the historic Tennessee River Gorge.

The boat was designed as a pleasure craft and will carry no freight; however, there is storage space for 50 automobiles, a feature which will allow motorists going to or from Florida on their annual hegiras to break their trips with an interesting voyage up or down the Tennessee.

Although the craft must still be classed as a "post-war project," R. I. Ingalls, Sr., chairman of the Ingalls Shipbuilding Corporation, pointed out that "the boat is beyond the dream stage." He added that "the drawings are not an artist's conception of the boat, but architecturally correct."

The Tennessee Waterways Conference, of which Earl P. Carter is president, has voted to sponsor the preliminary plans for construction and operation of the boat. The Chattanooga Chamber of Commerce, as well as other civic organizations

throughout the Tennessee Valley area, also is cooperating with the preparations. The Conference successfully sponsored the construction of four public-use terminals along the Tennessee River from Decatur to Knoxville.

The revolutionary craft, with a top speed of 18 miles per hour, will be 250 feet long, with a beam of 50 feet and a draft of 8 feet. She will have a swimming pool on a huge sundeck (165 feet long, partially covered by awning), an observation lounge 100 feet in length and a clubroom of the same measurement to accommodate all passengers for dining and dancing.

Two features of the boat, which will rival palatial round-the-world liners with her equipment and accommodations, may be traced directly to designs developed by the war.

Openings similar to those on the bows of LST's (Landing Ships, Tanks) will enable passengers and

automobiles to come aboard quickly and without trouble. The gangplanks at these openings will be operated electrically.

A new safety device is the transparent blister atop the pilot house which gives the pilot a 360 degree range of vision. This construction was borrowed from warplane design, and is similar to the plexiglass blister for the top turret gunner aboard bombers.

Observation platforms will be equipped with windows 7 feet wide, instead of the usual portlights. Verandas for outside staterooms will have large continuous windows. The many windows will allow observation from vantage points on both decks.

The boat's shallow draft of 8 feet will facilitate loading and unloading at any place along the river regardless of whether elaborate dock facilities are available.

Most of the staterooms will have shower baths; there will be eight deluxe staterooms, larger and more elaborately furnished than the others.

Ship-to-shore telephone service will be available in the radio room. A barber shop, beauty parlor, combination shop selling drugs, tobacco, etc., and equipment for showing motion pictures will be included in the luxurious accommodations.

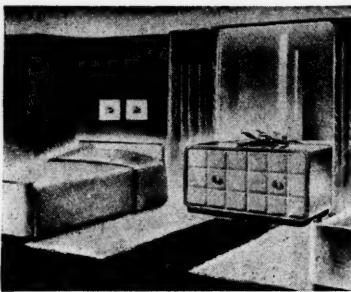
Although this lake-type boat was designed for use on the Tennessee River, similar craft well may operate on inland waterways throughout the nation.

Ingalls' Decatur yard, at present, is devoted entirely to war work, as are all its steel fabrication plants and the yard at Pascagoula, Miss.

(Continued on page 146)

*Above—Tennessee River cruise liner to be built after the war by Ingalls Shipbuilding Corp. The vessel was designed by George C. Sharp, New York naval architect.*

*Below—Stateroom of the proposed river queen will be luxurious.*



## TISSUE TIPS by VICTORIA



### Exceptional Facilities for the Collection of Drafts

Remittance made on day of payment.

#### BALTIMORE COMMERCIAL BANK

ROBERT C. WILLIS, JR., President  
BALTIMORE 3, MARYLAND

Member Federal Reserve System  
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## EPPINGER AND RUSSELL CO.

Wood Preservers Since 1878

All Kinds of Structural Timbers and Lumber  
Pressure Treated with Creosote Oil or



80 EIGHTH AVE., NEW YORK, N.Y.

POLES • CROSS ARMS • PILING • TIES  
POSTS, BRIDGE AND DOCK TIMBERS

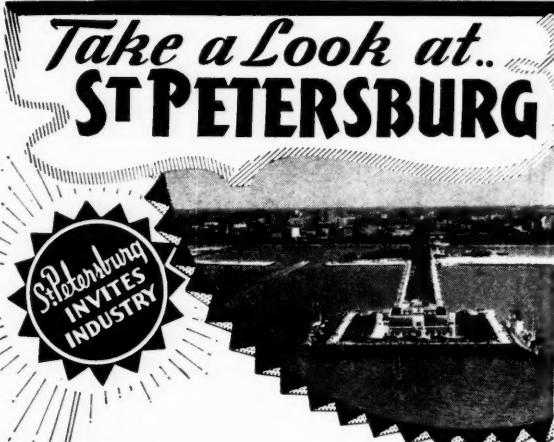
Treating Plants—Jacksonville, Fla., Norfolk, Va., Long Island City, N.Y.

MAY NINETEEN FORTY-FOUR

## For Your Southern Plant **ORLANDO**

Greater Orlando, which is now a community of more than 60,000 population, offers exceptional advantages for new industries and branch plants of already established industries and for distribution offices for Florida and the southeast. Located in the geographical center of Florida, Orlando is within easy access by train, plane and trunk highway of all the markets and raw materials of this fast growing state. For statistical data and special information, address Greater Orlando Chamber of Commerce, 152 Chamber of Commerce Building, Orlando, Florida.

### OPPORTUNITY CENTER OF **FLORIDA**

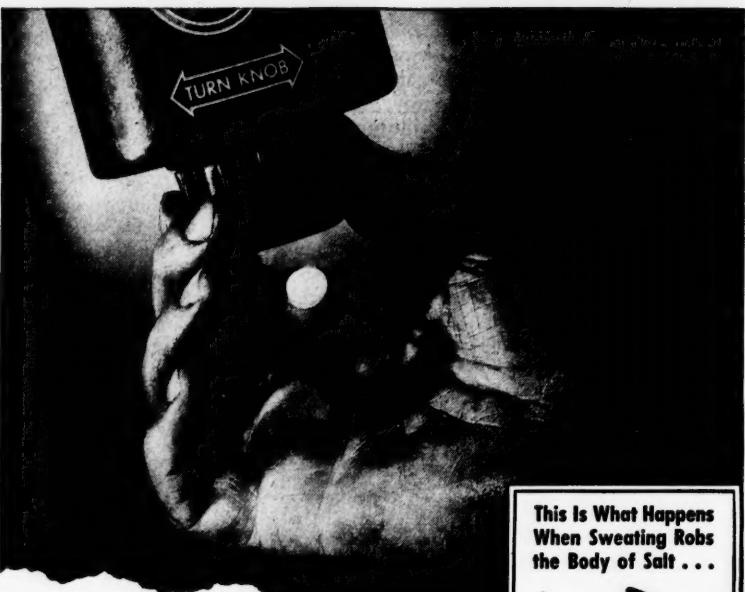


While you are engaged in post-war business planning, it will pay you to investigate the opportunities offered by St. Petersburg, Florida, the dynamic "Sunshine City." This community, second largest resort center of the South, is also interested in attracting and developing light industries. Many advantages in markets, materials, labor, and living conditions combine to make St. Petersburg particularly attractive for certain types of selected industries. For booklet, "St. Petersburg Invites Industry," write Industrial Department, Chamber of Commerce, St. Petersburg, Florida.

**ST PETERSBURG Florida**  
THE SUNSHINE CITY

# WORKERS Need Salt-

Supply it - this easy, simple way for less than 1c a man per week



At hard work on a hot day, a worker can easily throw off several quarts of sweat — sweat that robs his body of vital salt.

Salt is a balance wheel in the human body. It keeps body fluids in equilibrium and gives tone to the blood. When salt is lost the body is dehydrated and the blood thickens. The result is Heat-Fag, lassitude, inalertness. Production suffers, accidents increase, absenteeism is common.

But loss of body fluids causes thirst. Excess water without salt under these conditions, dilutes body fluids and causes heat cramps.

The easy, simple, sanitary way to replace the salt lost through sweat is with Morton's Salt Tablets. It costs less than a cent a man per week to have Morton's Salt Tablets available at every drinking fountain.

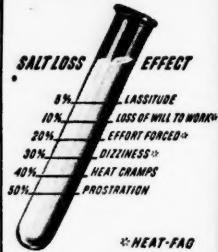
Physicians with America's largest manufacturing plants have the figures to show that this cuts down Heat-Fag, heat cramps, heat prostrations. Production stays up. Accidents stay down.



MORTON'S DISPENSERS  
They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.  
800 Tablet size - - - \$3.25  
Order from your distributor or directly from this advertisement... Write for free folder.

MORTON SALT COMPANY, Chicago 4, Ill.

This Is What Happens  
When Sweating Robs  
the Body of Salt . . .



QUICK DISSOLVING

(Less than 30 Seconds)

This is how a Morton Salt Tablet looks when magnified. See how soft and porous it is inside. When swallowed with a drink of water, it dissolves in less than 30 seconds.

Case of 9000, 10-grain salt tablets - - - - \$2.60

Salt-Dextrose tablets, case of 9000 - - - - \$3.15



## Southern Industrial Expansion Last Month

(Continued from page 112)

401 S. Exeter St. for Carrollton Springs Pure Rye Distillery, Inc.

BALTIMORE — Equipment — Defense Plant Corp. closed contract with Koppers Co. for additional equipment at plant; \$185,000.

CUMBERLAND — Plant — Cement Products Co., William P. Roeder, Pres., plans erecting concrete block manufacturing plant.

DUNDALK — Building — Cummins Construction Corp., Baltimore, has contract for dryer building for Baltimore Pure Rye Distilling Co.

FAIRFIELD — Addition — Cummins Construction Corp., Baltimore, has contract for addition to Headhouse No. 3 for Bethlehem-Fairfield Shipyard, Inc.

### MISSISSIPPI

JACKSON — Building — Shelby Electric Co., 303 E. Hamilton St., receives bids to erect warehouse.

VICKSBURG — Office — Le Tourneau Company of Mississippi, will construct a \$100,000 permanent office building.

### MISSOURI

HIGGINSVILLE — Transmission Line — West Central Electric Cooperative has REA allocation of \$20,000 for extending electric service.

ST. LOUIS — Addition — Woermann Construction Co., has contract for alterations and additions to plant for Mine Equipment Co.

ST. LOUIS — Addition — A. R. Roades has contract for factory addition for Blanke Baer Extract & Preserving Co.

ST. LOUIS — Boiler Room Addition — Woermann Construction Co. has contract for boiler room addition for Krey Packing Co.

ST. LOUIS — Enlargement — Monsanto Chemical Co., post-war operation, will call for approximately \$40,000,000 in new plant construction.

ST. LOUIS — Equipment — Defense Plant Corporation authorized contract with McDonnell Aircraft Corp., St. Louis, for additional equipment.

ST. LOUIS — Expansion — International Harvester Co., Chicago, Ill., acquired 105,000 square feet with frontage on Broadway, Dock and Ninth Sts. for post-war expansion.

ST. LOUIS — Expansion — Wiles-Chapman Lumber Co., 1234 S. Kingshighway, constructing addition.

ST. LOUIS — Factory — Bumiller & Meyersleck, 3407½ S. Jefferson Ave., have construction work started on factory building, 2020 N. Broadway, for Atlas Enameling Co.

ST. LOUIS — Expansion — Gravois Planning Mill Co., 3026 Juanita Ave., making addition.

ST. LOUIS — Expansion — American Stove Co. started work on addition to research laboratory.

ST. LOUIS — Factory — H. Kissel's Sons, 4107 W. Florissant Ave., has contract for building, 4200 N. Second St.

ST. LOUIS — Plant — H. Brock, 3300 York Court, has contract for 1-story factory for Service Products Co., cost \$10,000.

ST. LOUIS — Plant — National Bearing Metals Corp. let contract to J. S. Alberici Construction Co., for addition to plant, cost \$12,000.

ST. LOUIS — Warehouse — W. C. Harting Construction Co. has contract for warehouse for Manufacturers Railway Co.

ST. LOUIS — Warehouse, etc. — E. E. Marx has contract for warehouse, office and garage for Thompson Biscuit Co.

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#### NORTH CAROLINA

**BELMONT** — Plant — Belmont Hosiery Mills, Inc., working on plans and specifications for new plant.

**CHARLOTTE** — Machine Shop — Ernest Ford has contract for machine shop for Precision Gear & Machine Co.

**DURHAM** — Expansion — Bell Bakeries, Inc., plans complete modernization of equipment and possibly additional facilities of recently acquired plant of Moss Bakery, Inc.; \$100,000.

**NEW BERN** — Office Building — D. J. Rose & Son, Rocky Mount, has contract for office building for Carolina Telephone & Telegraph Co.

#### OKLAHOMA

**CORDELL** — Rural Line — Kiwash Electric Co-Operative, Inc., has \$50,000 REA funds for additional lines in Washita County.

**HOLLIS** — Rural Line — Harmon Electric Association has REA funds of \$50,000 for additional lines in Harmon County.

**HUGO** — Rural Line — Choctaw Electric Co-operative, Inc., has \$50,000 REA funds for additional lines in Choctaw County.

**MARIETTA** — Rural Line — Red River Valley Electric Association has \$50,000 REA funds for additional lines in Love County.

**NORMAN** — Rural Line — Oklahoma Electric Co-operative, Inc., has \$50,000 REA funds for additional lines in Cleveland County.

**TIPTON** — Rural Line — Kiwash Electric Co-operative, Inc., has \$50,000 REA funds for additional lines in Tillman County.

#### SOUTH CAROLINA

**GREENWOOD** — Plant — J. B. Carr Biscuit Co., Wilkes-Barre, Pa., erect addition to biscuit and cracker plant.

**MONCKS CORNER** — Office Building — Board of Directors of South Carolina Public Service, Columbia, has had plans approved by War Production Board and FWA for \$55,000 permanent type construction.

**ROCKHILL** — Plant — Lance, Inc., Charlotte, N. C., will establish an assembly plant to produce peanut butter product.

**SPARTANBURG** — Plant — Fiske Carter Construction Co., Spartanburg, has contract for building for Raycord, Inc.

#### TENNESSEE

**COLUMBIA** — Chemical Plant — C. G. Kershaw Contracting Co., Birmingham, Ala., has contract for chemical plant, including road and utilities for U. S. Engineer Office, Mobile, Ala., to be operated by Monsanto Chemical Co.

**NASHVILLE** — Plant — Tennessee Valley Associated Marketers announced that a plant manufacturing electric irons and other electric appliances will be established temporarily at 909-911 Commerce St.

#### TEXAS

**Pipe Line** — Reconstruction Finance Corp. has approved a \$44,000,000 loan to Tennessee Gas and Transmission Co., a subsidiary of Chicago Corp.; loan will be used in financing construction of the 1263-mile natural gas pipeline from coastal Texas to West Virginia; total cost \$51,000,000.

**ALVIN** — Warehouse — Irvine J. Shapley, 1108 Fairview Ave., Houston, has contract for constructing rice dryer and warehouse for Southern Warehouse Corp.

**BROOKSHIRE** — Rice Dryer — Tellepsen Construction Co., Houston, has contract, work to start at once for construction of 9,000-barrel capacity rice dryer.

**CORPUS CHRISTI** — Cold Storage — Star Fish & Oyster Co. has plans in progress for cold storage building.

**DAINGERFIELD** — Facilities — Defense Plant Corporation, Washington, D. C., negotiated contract with Lone Star Steel Co., Dallas, for additional facilities; \$400,000.

**DALLAS** — Machine Shop — E. V. McRight & Co. has contract for machine shop for Sutton, Steele & Steele, Inc.

**DALLAS** — Sales Building — Alexander Motor Co., 2121 Pacific St., plans \$500,000 automobile sales and service building.

**DALLAS** — Plant Remodeling — L. E. Arman, Dallas, has contract for remodeling egg drying plant; J. M. Boyd, owner.

**EDINBURG** — Locker Plant — C. R. Fitzpatrick will construct locker plant.

(Continued on page 150)

# POST WAR PROFITS will BE AFFECTED BY TRANSPORTATION COSTS



#### Basic Advantages To Plant Locations In Tennessee

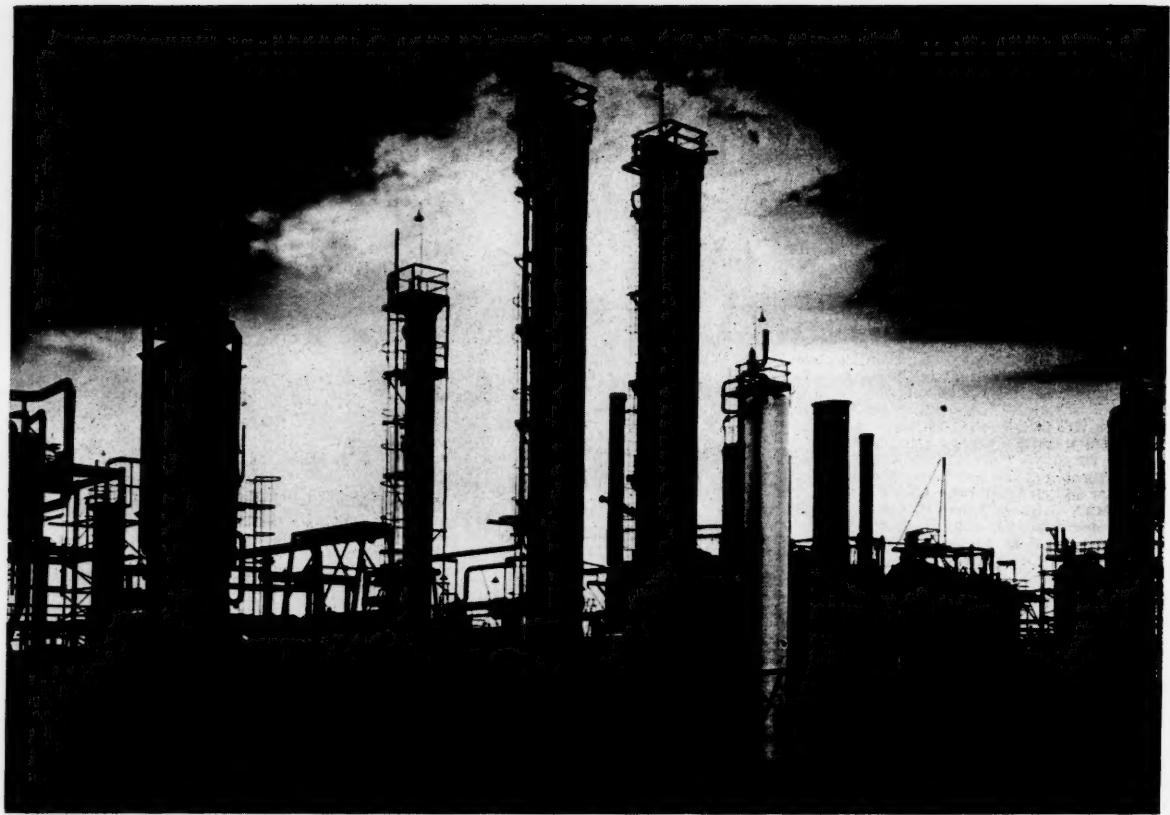
- ★ An unsurpassed variety of major industrial minerals and agricultural products.
- ★ Huge coal reserves making possible economical steam-power generation.
- ★ An inexhaustible supply of industrially suitable water.
- ★ Inland waterway system of three great rivers for low-cost transportation to Midwest, Gulf, and World ports.
- ★ Central location permitting 24-hour delivery to more than 51% of the Nation's population.
- ★ Excellent railway, highway, and airline transportation.
- ★ Cooperative skilled and semi-skilled native-born labor.
- ★ Opportunity for low-cost assemblage of raw materials or manufactured parts.
- ★ Uncongested plant sites near basic materials, river and rail terminals.
- ★ Ideal living conditions for both employer and employee.
- ★ Sound State tax structure. No personal earnings or sales taxes.
- ★ State and municipal governments friendly to industry.

Governor's Industrial Council, Department of Conservation

707 State Office Bldg.

Nashville, (3) Tenn.

*Investigate* **TENNESSEE**  
THE FIRST PUBLIC POWER STATE



Panorama view of gasoline recovery equipment of 100-octane catalytic cracking unit at Sinclair Refining Company's Corpus Christi plant. Thermal cracking unit is shown in right background.

## Sinclair Combines Texas Units

THE Corpus Christi refinery of the Sinclair Refining Co. is practically a new unit which has been formed by combining the Terminal refinery, the Amoco tank farm, and the Defense Supply Corporation's 100-octane project located adjacent to the Terminal refinery. These three properties, purchased separately, now together form the unit at Corpus Christi.

When purchase of the D. P. C. project was made in December 1942, plans had been made and some work had been done towards the completion of the 100-octane plant. While these plans were followed in general, the Sinclair engineers made certain revisions and additions which not only increase the capacity over that originally planned, but also will permit satisfactory operations with any of the different grades of crude available in the

Corpus Christi area. Wherever possible, construction was modified to follow practices which have proven most economical and practical in other Sinclair refineries.

Work on the new construction was continued without any delay notwithstanding change in ownership, and under the direction of Sinclair engineers, the E. B. Badger and Sons Co. carried on as general contractors at an accelerated pace. At present several units of the new work are in operation and soon the whole plant will be functioning according to plan.

Refinery operations for Sinclair at Corpus Christi are under the control of Parker Kendall, assistant manager of refineries for Texas, and E. B. Killick, superintendent of Corpus Christi refinery; both have had extensive experience in managing refineries and have built up an able

organization of operators, engineers, chemists, and technicians, all of whom have had training and experience along their specialized lines in older plants of the Sinclair Refining Co. With this trained personnel it is expected the new Corpus Christi plant will start up and operate as smoothly as an old plant with an established organization.

This new refinery is a complete topping and cracking plant with the modern equipment needed for the production of 100-octane aviation gasoline. The major plants used in the refining process are:

- A.—Topping still for separating crude into suitable fractions for further processing.
- B.—Thermal cracking still for improving the octane of crude gasoline and for cracking heavy gas oil and crude residuum into light

(Continued on page 146)

# The Arundel Corporation

## BALTIMORE, MD.

### Dredging—Construction—Engineering

Distributors of Sand-Gravel-Stone and Commercial Slag

#### A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

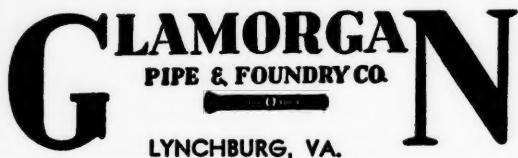
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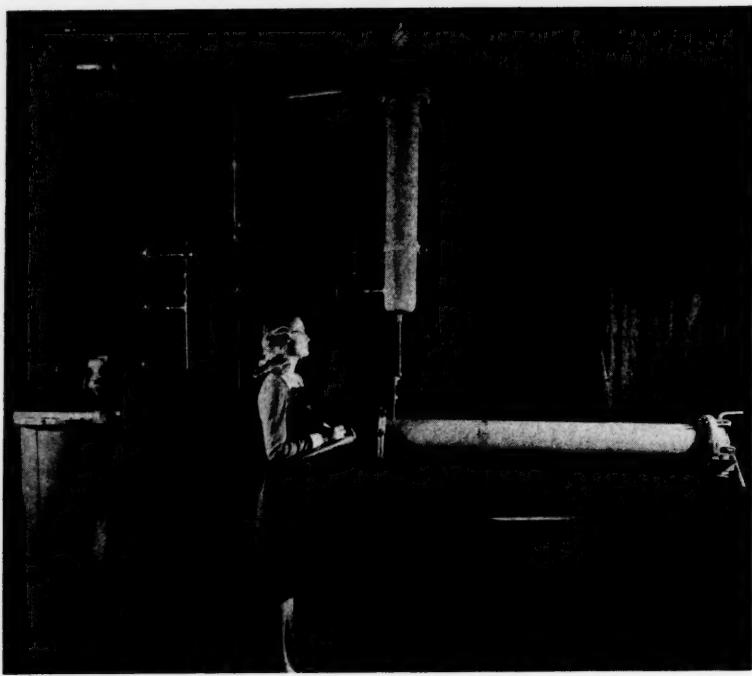
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# Chemical Treatment Strengthens and Hardens Wood



Above—How wood is treated to increase its strength, hardness, durability and dimensional stability. The material is placed in the treating cylinder at the right where it is impregnated with a solution of methylolurea from the tank at the left. The overflow cylinder at the top center is the reservoir for the chemical solution, the gauge indicating the progress of absorption. A steam jet creates the required vacuum. The layout is DuPont's experimental unit.

Below—Dogwood, persimmon and similar woods may be replaced by methylolurea treated wood in manufacture of textile equipment such as the shuttles, spindle, bobbin and spool shown in the illustration.

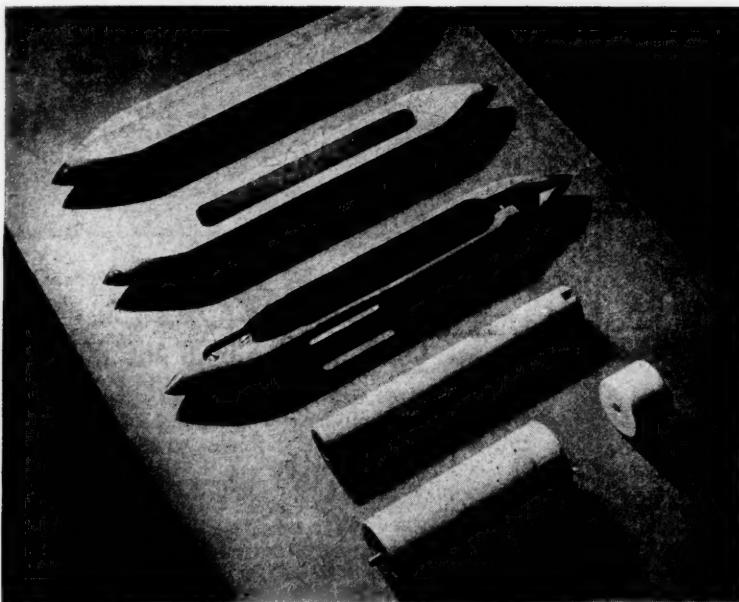
CHEMICAL methods of transmuting wood to create strengths and degrees of hardness hitherto unknown have been developed by the E. I. duPont de Nemours Co., converting ordinary wood into wide new ranges of usefulness. The process is now available for war purposes and offers many post-war applications.

Wood, one of the earliest of materials used by man, and one of the

most plentiful, along with its virtues, has certain inherent defects that are objectionable to the engineer, fabricator, chemist, builder and user. Chief among its defects are slow drying; it checks, splits and warps during drying; it is a prey to insects, is inflammable; it rots. Dimensions are changed by weather and humidity. It is too soft for many purposes and lacks strength for others. Incidentally, the most abundant woods are the soft woods.

The process, applicable to any wood and even to sawdust, shavings and similar wood waste, can also be used to treat other cellulosic and fibrous products. Near-at-hand, cheaper species of woods can now compete in fields hitherto open only to costlier, scarcer varieties that come from afar. The development is expected to increase the importance of forest products in varied fields of manufacture and construction. It will permit the construction of doors, windows and drawers that will not stick, reconstituting the wood to order, even to making it strong enough to substitute for steel in certain machinery parts, say duPont chemists, enabling industry to create in a few days woods harder than ebony, which nature takes centuries to grow. The chemicals, derived from coal, air and water actually transform the wood into substances as different from the original as steel is from iron. Methylolurea is the chemical agent that effects these fundamental changes. It is compounded by the

(Continued on page 142)





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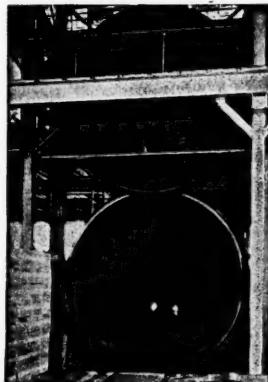
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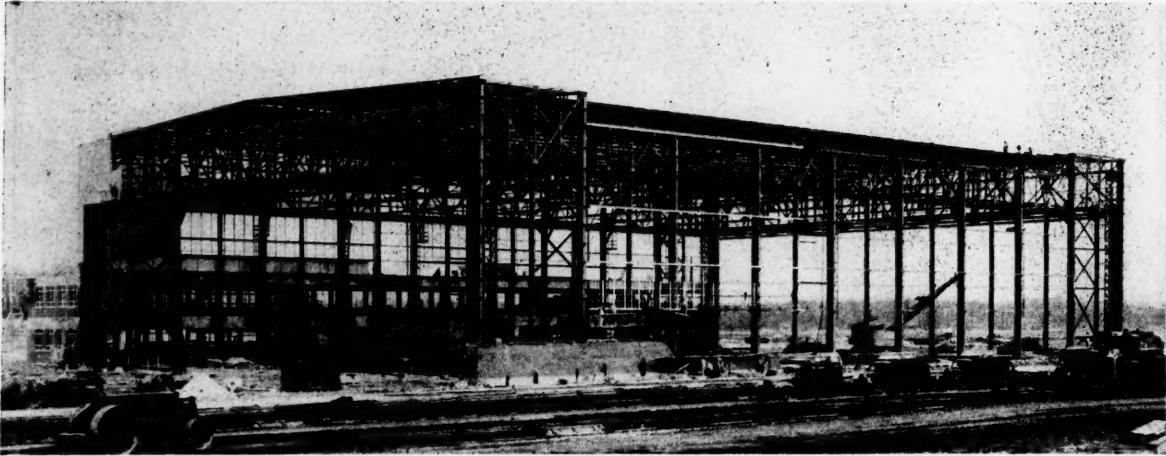


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*Hangar being built as center of Martin Delivery Base*

## Martin Building Delivery Terminal

THE nucleus of what after the war may make Baltimore as important an aircraft repair and service station as it is now a plane production center is being placed in operation near the expansive Glenn L. Martin Company plant at Middle River, southeast of the Maryland metropolis.

Where in war the giant 70-ton flying boats and big patrol bombers speed toward worldwide battlefronts, in peacetime similar and perhaps larger craft may make their fledgling flights and perhaps return later for repairs, renovations or revisions after traveling global trade routes of the air.

The possible contender for the post-war aircraft "dry-dock" business is a new flying boat facility designed to dispatch the testing and delivery of the JRM or Mars type flying boats and the PBM Mariner produced at the Martin plant for the United States Navy.

Located on Strawberry Point, one of a number of such peninsulas in the vicinity, the new base adjoins the extensive Martin airport to which it is connected by a concrete taxi-way. The project is fully equipped to handle the inspection, packing, testing, operation and servicing of the big flying boats. These facilities after the war could well be transferred to plane repair activities.

Physical details of the new base include a permanent, steel, daylight design hangar, a two-story building to provide office and storage space, a concrete ramp by which the planes will be launched or beached, a concrete apron and concrete compass compensating area, as well as docks for service boats.

The hangar will have a 200-foot clear entrance with doors at both ends. Its area will be large enough to house six PBM's, the big 24-ton Martin Navy patrol bombers, or three JRM flying boats, the huge 70-ton seaplanes for which the Martin company recently received a contract to build for the Navy.

The new Strawberry Point base will

relieve much of the congestion due to new and increased contracts on the existing seaplane ramp in the Martin manufacturing area, where all operations from preliminary ground tests to packing and delivery of the PBM planes are now carried on.

When the new facilities are completed and placed in operation in the near future, many of the operations now done in the manufacturing area will be transferred to Strawberry Point, thus permitting the same separation between manufacturing and flying operations that has proved successful with the B-26 Marauder and A-30 Baltimore landplanes.

Such modification work as will be necessary will be done at the new project. The location at Strawberry Point, according to Navy officials, will also permit seaplane delivery activities at a point closer to open water, a fact that will mean less ice hazard during winter weather.

Current plans for utilization of the new base indicate that all operations on the PBM, or Mariner bomber will be continued at the manufacturing area ramp and apron. After passing company flight tests, the planes will be taken to the new Strawberry Point reservation where they will be beached for an after-flight check, packed, inspected, inventoried and then turned over to Navy representatives.

The new facilities, it is pointed out by Martin spokesmen, will be even more fully utilized in the case of the 70-ton JRM Mars flying boats, the first of which

is expected to come off the production line early in 1945. These 70-ton giants will be ground tested in the manufacturing area and then towed to Strawberry Point for all further pre-flight, flight and delivery operations.

Construction of the new flying boat base is being supervised by the Bureau of Yards and Docks of the United States Navy, with the Glenn L. Martin Company acting as prime contractor. Albert Kahn Associated Architects and Engineers, widely known Detroit architectural and engineering concern, made the designs for the base, as they have in the past designed other of the structures at the Middle River plant.

Development of the Mars type flying boat, one of the two to be delivered at present at the new base, dates back to 1937 when the Navy decided to build an experimental flying boat of herculean proportions.

Winning the award with its design for the Mars, the Martin Company assigned a group of engineers to the project. More than 12,600 drawings were then prepared to engineer the details of the giant ship.

Keel of the XPB2M, as it was then known, was laid with Navy sponsorship in August, 1940, the first such ceremony to be held for an airplane. Twenty-thousand pound wings were mounted on the big hull about eleven months later.

The huge flying boat Mars was launched and christened November 8, 1941, with a bottle of champagne being broken across his prow in a ceremony paralleling that accorded surface vessels. Its first test flight was made July 3, 1942.

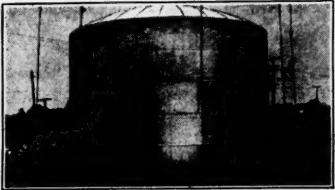
Upon the Navy's decision to make a passenger and transport plane from what originally had been planned as a patrol bomber, the Mars was converted to its less warlike purpose and made its maiden flight to Brazil. It has since been engaged in the Pacific theatre by the Naval Air Transport Service.



*Above—The Mars, progenitor of the 20 JRM type planes of about 70 tons weight, which the Glenn L. Martin Company will deliver to the Navy at the new Strawberry Point base.*

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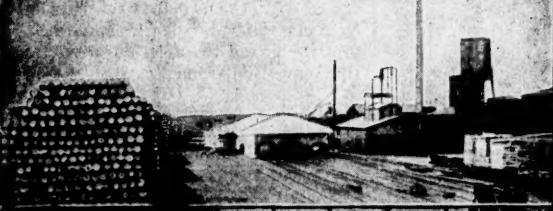
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## \$6,000,000 Revere Plant at Halethorpe Designed and Built by James Stewart

THE New \$6,000,000 magnesium extrusion plant now being operated by Revere Copper and Brass, Inc., at Halethorpe, Md., is one of the largest in the country, with an additional \$1,000,000 now being spent. The project was designed and constructed by James Stewart & Co., Inc., engineers and contractors of New York.

Completion of the plant marks another step in a field where this country has lagged behind England and Germany, according to Revere officials, who state that not too much is known about the extent of German applications of the metal except that when the supply of aluminum became scarce, the Nazi war production machine turned to magnesium.

Fabrication of magnesium, they point out, began twenty-five years ago, but the military and commercial possibilities of the metal have only been recently recognized. Magnesium and magnesium alloys are expected to play an important part in the post-war world. The source of supply is practically unlimited.

Magnesium and magnesium alloys because of lightness, strength, rigidity and machinability may revolutionize the aviation industry. Revere officials point to a British plane in which the fuel tanks made of magnesium alloy represent a dead weight saving of 1,000 pounds per plant.

Bomb loads in war time and pay loads in peace time are increased proportionately with every decrease in the total weight of the plane. The general field of transportation is also said to offer possibilities by use of the new light metal in trucks, buses, automobiles, tank transports and railroad equipment.

The Revere casting shop at Halethorpe is one of the world's largest for production of magnesium in the form of sheets, strip, extruded tubes, rods and shapes. Equipment in the plant is housed in an area covering several acres. The operation rounds out Revere activities at Baltimore, where magnesium sheet and strip rolling was already being carried out at another plant.

Official personnel include: Irving T. Bennett, vice president of Revere Copper and Brass, Inc., in charge of the magnesium-aluminum division; A. N. Aird, works manager; Conrad Fick, comptroller; E. S. Bunn, metallurgical engineer; S. H. Wilson, service manager; Harold Wilson, assistant service manager; W. S. Prentiss, personnel director; Stanley J. Keyes, production manager; Orville Klema, methods manager; John Farrell, plant engineer, and Thomas Callahan, industrial engineer.

### Superphosphate Output Placed at 9,000,000 Tons This Year

THE output of normal superphosphate during the 1943-44 production year is estimated at 6,900,000 tons by the War Production Board. New superphosphate facilities with an annual production approximating 612,000 tons have been approved and construction will be completed during the second half of 1944. Approximately 175,000 tons of the new production will be triple superphosphate. The anticipated supply of sulphur acid for superphosphate production in 1944-45 is adequate for producing 9,000,000 tons of normal superphosphate, the Board said.

### Delta Air Lines Traffic Shows Heavy Increase

Delta Air Lines carried 32.5 per cent more passengers during the first quarter of 1944 than in the first three months of 1943, reports R. Stanley Webber, general traffic manager. Revenue passenger miles (carrying one passenger one mile) rose from 8,859,600 to 12,607,089 for the quarterly period, an increase of 42.3 per cent. Revenue passengers totaled 32,627, a gain of 8,012 or 32.5 per cent. The system load factor (percentage of seats occupied at all times) averaged 89.7 per cent, against 86.5 per cent for the first quarter of 1943. The average passenger haul increased 7.5 per cent, from 360 miles to 387 miles.

Mail and express volume also mounted sharply. Mail pound miles (carrying one pound one mile) totaled 389,732,514 for the first three months of 1944, against 266,432,889 for the same period last year, an increase of 46.3 per cent. Express pound miles for the quarter totaled 58,619,360, as compared with 45,555,799 in the same period in 1943.

Webber said that part of the increases could be attributed to Delta's Fort Worth-New Orleans route which was inaugurated in October 1943. Definite gains were reported, however, over the rest of the system alone. Revenue passenger miles made a 26.2 per cent increase exclusive of the New Orleans route, and the number of revenue passengers carried increased 17.6 per cent.

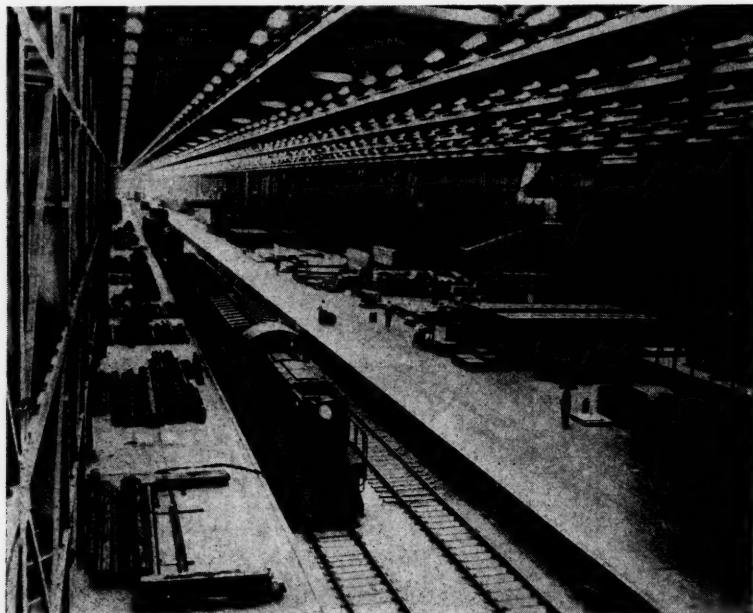
### Kentucky Road Program

The Kentucky Department of Highways construction program for last year was 95 per cent resurfacing and consisted principally of resurfacing existing roads and rehabilitation of sections of concrete pavement along main trunk lines, it is announced by G. L. Logan, director of construction under State Highway Engineer T. H. Cutler. The other five per cent of the program consisted of access roads to military camps and trails leading to raw materials. The 1944 program will resemble that of 1943, Mr. Logan says, the probability being that resurfacing will prevail for the duration of the war or until restrictions are lifted by the War Production Board.

### Titanium, Versatile Element

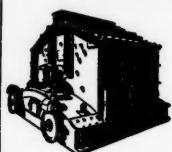
TITANIUM, the ninth commonest element in the earth's crust, is one of the most widely used, although as recently as the last war, it had little commercial value. Today, it is one of the most versatile and from dawn to dusk everyone is almost sure to handle an object containing the substance.

*Left—View of the railroad bay of the Bell bomber plant at Marietta, Ga., where supplies are inspected and received before being moved into the manufacturing area. Sylvania fluorescent lights illuminate the bay.*

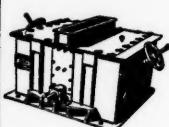


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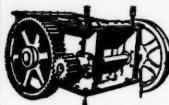


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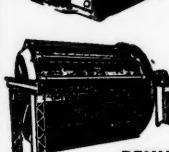
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# Industrial News

## New Chain Hoist

Designed for users preferring chain hoisting, the small "Handi-Lift" developed by Harnischfeger Corporation, Milwaukee, Wis., introduces new features into the electric chain hoist field. Increased utility is claimed by quick interchangeability to bolt, hook or trolley mounting. Also, in trolley service, it can be suspended either parallel or crosswise to beam for greater flexibility. Fully enclosed construction permits use under any condition of weather, dust, moisture, or acid fumes. While the unit is rated at 500 pounds, a genuine hoist motor supplies high reserve capacity. The chain is proof-tested for 1800 pounds. Operation is by handy pull cord actuating a simple lever toggle arrangement, which leaves one hand free to guide the load.

## New Diesel Fuel Filters

Briggs Clarifier Co., Washington 7, D. C., has announced an improved standard line of round tank fuel oil filters for Diesel engines. New models have been added to broaden the application of Briggs Fuel Oil Clarifiers so that flow capacities range up to 500 G. P. H.

Maximum working pressures and hydrostatic test pressures have been established to meet specific demands of the application. For small high speed Diesel engines where pressures sometimes run well above 50 P. S. I. the clarifier is designed for a maximum working pressure of 100 P. S. I. and is hydrostatically tested at 150 P. S. I. For large, heavy-duty Diesels where pressure is usually between 15 and 25 lbs., the clarifier is designed for a maximum working pressure of 40 P. S. I. and hydrostatically tested at 60 P. S. I. Pressure drop across the filter ranges from 0 to 5 P. S. I. on all models.

## Irving Grating Appoints Five New Representatives

Anticipating a post-war boom in use of open steel grating as bridge decking, as landing mats for helicopters and for industrial flooring, the Irving Subway Grating Co., Long Island City, has appointed five new district sales representatives and sales organizations in the mid-South. They are: H. W. Stoval, Richmond, Va.; General Marine & Supply Co., Charleston, S. C.; Illingworth Engineering Co., Jacksonville, Fla.; Leo Magnus, Memphis, Tenn., and Rittelmeier & Co., Atlanta, Ga. "Surveys have shown the new industrial South will be the first to capitalize on post-war needs and demands," Walter E. Irving, company president, said in announcing the appointments.

## J. J. Pugh Joins Maguire

The Walter Maguire Company, Inc., announce that J. J. Pugh has joined the organization as Vice President, in charge of all sales activities. Mr. Pugh has been closely allied with the machinery industry for twenty-four years, more particularly in the dairy field. He was formerly Sales Manager of both the Lathrop-Paulson Co., Chicago, and the Rice & Adams Corp., Buffalo. For the past five months he was an Expert Consultant with the U. S. Army Signal Corps. The Walter Maguire Co. specializes in Emery Aggregate for heavy-duty, non-slip industrial floors, and also in receiving room equipment, conveyors and escalators for the dairy field.

## New Inserted-Blade Cutters

Kennametal Inc., Latrobe, Pa., announce a new line of inserted-blade cutters, known as Kennamills, for step-milling of steel. These new cutters are available in four sizes: 2" with 3 blades; 3", 4", and 5" each with 4 blades. The 2", and 3" sizes have taper shanks to fit No. 40 and No. 50 spindles; the 4" and 5" sizes have taper shanks to fit No. 50 spindle only. All sizes use the same standard replaceable Kennametal-tipped blades. To facilitate immediate delivery, Kennamills are stocked at Kennametal offices in Atlanta, Chicago, Detroit, Houston, Los Angeles, Philadelphia, New York, and San Francisco. Kennamills permit high-speed carbide milling of steel with the same smoothness of operation attained with multiple blade cutters, yet they are as simple to maintain as fly cutters, say the manufacturers.

## New Agitator by Porter

H. K. Porter Co., Inc., Pittsburgh, Pa., has developed a new side entering agitator which can be repacked from the outside without loss of liquid. The company is in process of replacing its entire line of standard agitators from  $\frac{1}{2}$  to 30 horsepower, with the new design.

The outside repacking can be done in 5 minutes, saving many man hours, and the expense of draining the tank, airblowing it in cases where toxic fumes make this necessary to permit a workman to enter, and then pumping back the fluid after the packing has been replaced. This is accomplished by using an external packing gland, while a seal attached to the shaft inside the tank may be drawn into a seat, hermetically sealing off the contents of the tank and permitting repacking with the tank full and no loss of liquid.

The new agitator has been completely re-engineered and contains many other features. All thrust is taken off the motor bearing by means of roller bearings operating against a ring attached to the shaft. This results in longer life for the motor gears and consequently for the motor. Also, by means of undercutts, the designers have made it impossible for leakage to get at the bearings, not only adding to their life but simplifying lubrication and eliminating the need for special lubricants. The new unit is completely weatherproofed with all moving parts protected from the elements.

## E. G. Bailey Elected Chairman

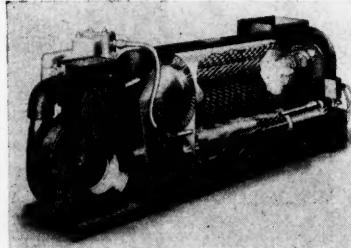
At a recent organization meeting of Bailey Meter Co. directors, E. G. Bailey, former president and company founder was elected chairman. Robert S. Coffin succeeds him as president. Mr. Coffin, who has been vice president since 1925, became identified with Bailey Meter Co. as treasurer at the time of its organization in 1916. Other officers elected at the meeting are, R. E. Woolley, vice president, who has served in that capacity since 1927, and J. H. Black, secretary-treasurer.

The company's present line of products includes meters and controls for both stationary and marine power plants, process industries, water supply and sewage treatment plants. One of its new products is a contour control for the automatic operation of machine tools.

## New Aircraft Heater

Cold, a bitter enemy of bomber crews, has had its bite removed. A new aircraft heater of the combustion type, burning gasoline from the plane's tanks, has been developed by the Heating Division, Anchor Post Fence Co., Baltimore, Md. Now in use on Navy Patrol bombers, as well as the giant Mars, it combines the multiple functions of cabin heating in flight and not in flight, with the transfer from one phase to the other automatically controlled. Also, it defrosts the pilot's windshield and bombardier's window, in addition to preheating the engines for quicker take offs in arctic temperatures, thus minimizing the danger of engine failure at a critical moment. In tests it has functioned properly at temperatures as low as 72 degrees below zero and at altitudes up to 40,000 feet. In flight the heater has an hourly output of 90,000 BTU, enough for a 5 or 6 room house, and is said to be so quiet in operation that crew members on duty are able to sleep undisturbed in the plane's cabin. According to the manufacturer the combustion principle involved has excellent possibilities in post-war domestic, automotive and space heating.

## Anchor Post Aircraft Heater



## Westinghouse Security Award

The National Security Award was presented to the Civilian Defense force of the Westinghouse Electric and Manufacturing Company's plant at Mansfield, Ohio, recently. The Mansfield plant was the third Westinghouse factory to win this honor.

## Synthetic Rubber Film Available From Goodyear

Filmed inside one of the nation's newest plants for making synthetic rubber, the Goodyear Tire & Rubber Company has completed a motion picture which is believed to be one of the most accurate and, at the same time, most easily understood motion pictures on this vital war material. The picture was produced by Goodyear in cooperation with the U. S. Bureau of Mines.

One version of the film was made for release through the Bureau of Mines film library in Pittsburgh, Pa., and the other for release through Goodyear's motion picture department in Akron, Ohio. In addition, Goodyear announced, copies of the film for public or private showings are available through all the company's branch offices and through all its Mechanical Goods field representatives.

The film stresses that, before the war, Americans were using more rubber than all the rest of the world combined. This is tied closely to the film's theme of an American industrial miracle which saw all the nation's lost natural rubber sources replaced in a scant two years with facilities for making synthetic rubber. One point made clear in the film is the fact that milkweed, goldenrod, cryptostegia, guayule and similar plants are not sources of synthetic rubber. Rather, they are sources of natural rubber but the quantity of latex in such plants is so small and so difficult to extract that they may never become important factors.

## Briggs Clarifier Gets Star

The Briggs Clarifier Co., Washington, D. C., designers and manufacturers of oil filtration equipment, recently earned the right to add a star to the Army-Navy "E" pennant which was awarded the company last September. The star award was presented to the company for even more outstanding production efficiency for a period of six months since award of the pennant. In accordance with the desire of the Navy Department, no special award ceremony was held beyond a simple announcement, since this would have interrupted production for at least half a day.

## Electronic Robots Read Wind Tunnel Test Instruments

Electronic robots that read instruments more accurately than a man, and automatically print their readings on a strip of paper are used to measure with high precision the speed of motors used in airplane wind tunnel tests, according to Everett S. Lee, engineer in charge of the general engineering laboratory of the General Electric Co. Much information about the behavior of newly designed airplanes is obtained by testing models in a wind tunnel, he explained. These models are powered with small electric motors, corresponding to the gasoline engines of full-sized planes. In order that information about the performance of these motors may be extended accurately to the big airplanes, data about their operation must be determined with great precision. Mr. Lee explained that the mechanisms may be adjusted so that they give the equivalent of readings on a scale more than eight feet long.

The indications picked up by electron tubes, Mr. Lee said, cause the rotation of a tiny thyratron-controlled motor, which in turn drives wheels carrying type for numbers. When the operator wants to take a reading he presses a button, and the type wheels print their setting at that moment.

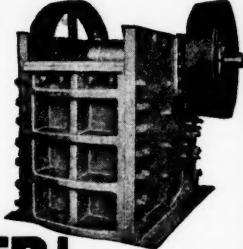
Mr. Lee told the electrical engineers that these electron tubes, especially the phototubes which are sensitive to light, perform many other tasks far beyond the powers of the human eye. For example, they may look at the end of a spinning shaft, and record the number of revolutions per minute up to 100,000 rpm or 200,000 rpm, as such speeds become available.

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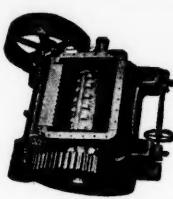


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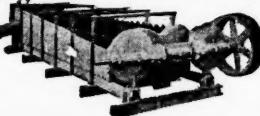


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Maybe it is entirely too early to order your postwar Water System. Maybe you can't even determine the amount of water you may need. But you do know that you are going to be pretty "hard boiled" about such things as long-life quality—top flight efficiency—and extra low operation cost.

Summing it up, you are going to demand the very features that have made Layne Water Systems world famous. But you are not going to buy on reputation alone. You are going to ask for a lot of bed-rock facts and figures. You will want to know exactly what you are getting for your dollars.

Fortunately, you are going to be the very kind of prospect that Layne likes to meet—the kind of buyer that will understand and fully appreciate the incomparably fine features found only in Layne Turbine Pumps and Water Systems. You are going to be a dandy postwar customer, and like hundreds of other "look before you leap" buyers, you are going to be a 100 percent satisfied Layne customer.

For literature and further facts, address Layne & Bowler, Inc., General Offices, Memphis (8), Tenn.

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## WELL WATER SYSTEMS DEEP WELL PUMPS

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EVERY INDUSTRIAL AND MUNICIPAL NEED

# Southern Editors Speak—

## The South's Chance

**W**E note that the Alabama legislature has recently made an annual appropriation to the University of Alabama of \$100,000 for research. Research, of course, is what the South needs. Abundantly blessed with natural resources, such as two-thirds of the nation's oil and natural gas, 40 per cent of its forests, and one-third of its minerals, the South is still a poor colonial relation of the industrial northeast; its per capita income is about half that of the rest of the country.

Why? Because we do not know how to turn our raw materials into finished products but still, by and large, ship them out in their crude form and buy them back after manufacture has added real value to them. It is through research that we learn to add value to what we have.

Dr. Herty's studies of pine trees and Dr. Carver's of peanuts have proved of inestimable material value to the South. But the door is just opening. The South has a virtual monopoly on rosins from which plastics are made; forests are waiting to be turned into all sorts of merchandise, wood as hard as steel and fabrics as soft as rayon.

The South has a marvelous opportunity for the greatest social and economic progress in the postwar era, as Donald M. Nelson, chairman of the WPB, and David Lilienthal, chairman of the TVA, have recently pointed out. And they are in a position to know whereof they speak. But this progress will not be inevitable and automatic. It depends on the people of the South and their qualities of energy, learning and wisdom.

We in the South have learned to our sorrow that ignorance and poverty are, in Dr. R. D. W. Connor's phrase, "Siamese twins." Industry and education, prosperity and learning, are Siamese twins no less. "Good government, universal education, social justice and economic development," are, as Dr. Connor indicates in his study of North Carolina's planning throughout its history, the four pillars on which the good society must rest. — *Greensboro Daily News*.

## Texas of Tomorrow

**A**MERICA is moving rapidly into a chemical era whose wonders are just beginning to be understood. Even educators and men of science until quite recently failed to grasp fully the potentialities of a scientifically-based research program which looks upon all plants not merely as sources of food and feed but as chemical raw materials. It is especially important in a time of near exhaustion of many of our mineral resources to be able to fall back upon an ever renewable supply of organic synthetic raw materials which can be grown

with the aid of nature from year to year. The pattern set by such nations as Germany, Italy, Russia and others, which had to rely largely upon native raw materials to meet both agricultural and industrial needs, is being vastly enlarged in our own land. This new idea is now invading the Southwest, a region which offers untold possibilities to the daring, unprejudiced researcher not hampered by outworn traditions and prohibitions. A new world is in the making, and Texas and the Southwest, through the farsighted leadership of SMU and other progressive institutions, will play an important role in shaping the Texas of tomorrow.—*Dallas Morning News*.

## He Blurred One Blueprint

**C**HIEF among the planners has been Harry Hopkins who came to a post of unique control over the lives of American citizens solely by reason of his worship of his chief. Mr. Hopkins, long ago, presented to the public the "blueprint" of America as the New Deal intended to make it over.

In articles published in magazines—at a nice profit—he told us that we would have to do without domestic servants; that we could not take a ride or send a telegram or make a long distance phone call without proving, to the satisfaction of the bureaucrats, that it was necessary. He said that the government— \* \* \* \*—"will determine the kind of food, clothing, housing, and businesses which we shall have, and will affect every detail of our daily lives." And even as he prophesied—with inside knowledge of \* \* \* \* government was going to do—so did it come to pass!

Mr. Hopkins is but one of the planners. Others are Rexford Guy Tugwell, now a present affliction on the poor people of Puerto Rico; Harold Ickes, holder of 24 important executive posts under the New Deal; Henry Wallace, advocate of requiring the American people to furnish a quart—or was it just a pint?—of milk a day to everybody everywhere throughout the world; and a multitude of others, great and small.

As for the plans, there can be no citizen of the United States who does not know at first hand something about some of them. Many of the results of the plans have been forgotten, but some are worth recalling. Do you remember the case of the little tailor in New Jersey who was sent to jail because he charged 5 cents more than the bureaucrats said he could for pressing a pair of pants?—*Wheeling Intelligencer*.

## Challenge to the South

**A**LABAMA is pointing the way to Virginia and the other Southern States in an important particular. We refer to the establishment there of the Alabama Research Institute, which is

setting up technological research fellowships in the various colleges and at the University of Alabama. Furthermore, the Legislature has just made the unprecedented annual appropriation to the university of \$100,000 for research purposes!

Here we have the recognition in one Southern Commonwealth, at least, of the crying need for a greatly accelerated technological and industrial advance, if the South is to realize its potentialities after this war, and become the prosperous and economically balanced region that it ought to be. Alabama has espoused the gospel which has been preached for years by the Southern Association of Science and Industry, and it evidently is making remarkable progress.

Dr. Milton H. Fies, of Birmingham, president of the association, wrote in the MANUFACTURERS RECORD not long ago: "The South has one-third of the minerals of the United States, one-fifth of the bituminous coal, two-thirds of the oil, two-thirds of the natural gas, one-half of the marble, 97 per cent of the phosphates, 99 per cent of the sulphur, 40 per cent of the forests, over 90 per cent of the cotton, 100 per cent of the turpentine and rosin, much iron ore and salt which is estimated not in tons but in cubic miles. Yet the average income of the South is low."

Instead of allowing the South's fabulously rich resources to be exploited by other parts of the country, and letting the land below the Potomac and the Ohio continue to be hardly more than a colonial dependency of the North, Dr. Fies favors development of our own resources by our own financiers and technicians. This can be done, if we show the requisite initiative and the ingenuity, but except in Alabama, it would seem that these qualities are not anywhere manifest.—*Richmond Times Dispatch*.

## New Patterns For America?

**A**s soldier writes: "What do they mean, fussing around about what kind of an America we servicemen want when we get home? Do they value America as something that can be changed with the seasons, the same as women's hats and clothes?"

"We can't escape the notion here that some people back home are trying to fashion new patterns for America—running around with tape-measures, shears, chalk and things, and quarreling among themselves as to what style of a tailor-made country will please us after the war.

"You tell these self-appointed designers to let Uncle Sam alone. When we get back, we want to see his swallow-tail coat still there, and his boot-straps, tall hat and everything else that's familiar. His way of dressing has been

(Continued on page 132)

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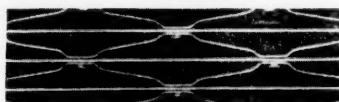
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# TRADE LITERATURE

## And Related Publications

### WELDING EQUIPMENT—

Victor Equipment Co., 844-54 Folsom St., San Francisco, Calif., manufacturers of welding equipment, have issued an attractive, illustrated booklet, "More About Victor."

### MODEL D TOURNAPUL—

A prime mover, small enough to be stowed in a transport plane, but powerful enough for civilian construction, is described in detail in a brochure available from R. G. Tourneau, Inc., Peoria, Ill.

### WATER DEGASIFICATION—

"The Degassing of Water," a new bulletin by Cochrane Corp., Philadelphia 32, Pa., will be useful to those industries in which the removal of gases from either hot or cold water is important.

### COMPRESSOR CATALOG—

The new Schramm catalog, No. 4215, illustrates in detail the company's No. 60 type compressor in various mountings for construction, engineering, railroads and small industrial installations. Address Schramm, Inc., West Chester, Pa.

### Z-METAL CHAIN BELTS—

Chain Belt Co., Milwaukee, Wis., has issued a new catalog of REX Z-Metal chain belts for drive and conveyor service in many industries. Z-Metal is a ductile ferrous cast metal, said to be 30 per cent stronger than good malleable iron. The company will mail the bulletin on request.

### CAR PULLERS—

Bulletin 774 of the Jeffrey Manufacturing Co., Columbus 16, Ohio, is available to those needing all-purpose pullers for car spotting, docking barges, handling moving operations in lumber yards, foundries, steel mills, etc.

### MEASUREMENT OF MICRO INCH—

"How to Measure in Micro Inches" is a 20-page booklet issued by Continental Machines, Inc., 1301 Washington Ave., S. Minneapolis, Minn. Amply illustrated, the booklet describes a number of new gaging instruments for high degrees of accuracy in maintaining close dimensions in fabrication and manufacture.

## Class I Railroad Income \$53,100,000 During March

CLASS I railroads of the United States in March, 1944, had an estimated net income, after interest and rentals, of \$53,100,000 compared with \$84,651,085 in March, 1943, according to reports filed by the carriers with the Bureau of Railway Economics of the Association of American Railroads and recently made public. Class I railroads in March, 1944, had a net railway operating income, before interest and rentals, of \$92,503,963 compared with a net railway operating income of \$129,652,003 in March, 1943.

Operating revenues for the month of March totaled \$797,029,214 compared with \$756,195,714 in March, 1943, while operating expenses totaled \$527,433,356 compared with \$449,410,669 in the same month of 1943.

Class I railroads in the first three months of this year had a net railway operating income, before interest and rentals, of \$262,610,155 compared with \$341,145,341 in the same period of 1943.

Class I railroads in the first three months of 1944, had an estimated net income, after interest and rentals, of \$146,500,000 compared with \$209,449,720 in the corresponding period of 1943.

In the twelve months ended March 30, 1944, the rate of return on property investment average 4.75 per cent compared with a rate of return of 6.02 per cent for the twelve months ended March 30, 1943.

The earnings reported above as net railway operating income, represent the amount left after the payment of operating expenses and taxes, but before interest, rentals and other fixed charges are paid. Property investment is the

(Continued on page 157)

## RAILROAD INCOME TRENDS

By

John J. Pelley

President

American Association of Railroads

DESPITE the downward trend in railroad net earnings which started nearly a year ago and still continues, the railroads of the United States will not oppose the extension for a further period of six months of the Interstate Commerce Commission's order suspending the increased freight rates which were in effect in 1942.

Because of increases in wage rates and in the prices of materials and supplies, operating expenses of the railroads in 1944 are running some \$35 million dollars a year higher than in 1943. Of this increase, approximately \$35 million dollars is due to increased prices and \$40 million dollars to higher wages and payroll taxes. As a result of these rising operating expenses, together with higher tax rates, railroad net earnings began to decline in

June, 1943, shortly after the increased rates were suspended, and have been going down ever since.

In their return to the Commission's order to show cause why the suspension should not be extended for the remainder of this year, the railroads point out that constantly increasing operating expenses and declining net income may make it necessary for them to apply for an increase in general rate levels prior to January 1, 1945.

In addition to the uncertainties as to trends of traffic and expenses, the railroads have to consider also the special uncertainties as to the future level of rates on the vast government traffic on which reduced charges are now made on account of land grants. Action of Congress on the Boren bill to terminate these deductions, the passage of which was recommended last week by the Interstate Commerce Committee of the House of Representatives, will materially affect future decisions as to the general level of rates necessary to maintain efficient and adequate railroad service.

W. A. Roberts



W. C. Johnson



J. M. White



## Allis Chalmers Names Three New Vice-Presidents

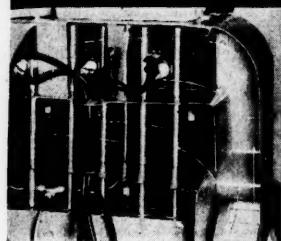
W. A. Roberts, William C. Johnson and James M. White have been elected vice-presidents of the Allis-Chalmers Manufacturing Co., of Milwaukee, Wis.

Mr. Roberts has been actively connected with the Allis-Chalmers tractor division for 20 years. He started as a blacksmith in the Wichita, Kans., branch and advanced through various positions to that of general sales manager of the tractor division, becoming manager of that division in 1941, a title he retains with his promotion to vice-president.

Mr. Johnson a native of Birmingham, Ala., joined Allis-Chalmers in 1924 as a field engineer in their mining and cement making machinery divisions. He entered the sales department in 1929 at the company's Atlanta office, and in 1937 became manager of the Knoxville district office. Later he was brought to Milwaukee and placed in charge of sales for the crushing and cement machinery department, and in 1942 was appointed general sales manager of the general machinery division. As vice-president he will continue in charge of sales of all products excepting those of the Tractor Division.

Mr. White, also an Alabamian, joined the Company's manufacturing department in 1929. Later he successively served as acting works manager at the La Crosse plant and works manager at the La Porte Plant. In 1941 he was appointed general works manager in charge of manufacturing. As vice-president, he will direct the company's manufacturing activities of all plants.

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WISCONSIN  
ENGINES**

The amount of air required for cooling the lower half of an engine cylinder won't do for the "business end", where the highly compressed fuel charge explodes.

With a continuous, large-volume air-flow to draw from, Wisconsin engineers have long since figured out just how much air to ration to each section of the engine, for most efficient cooling.

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Up to 1½ HP

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SEND FOR  
CATALOG  
Swivel Yoke  
Types—1/8 to 1½ HP.

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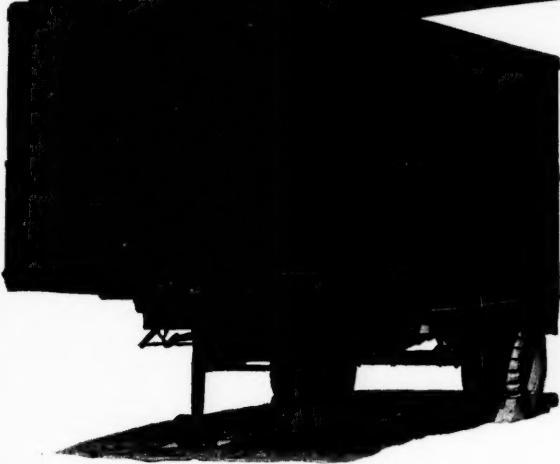
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Food taken on long hauls is protected by sub-freezing temperatures in heavily insulated trailer bodies. **ARMCO** Galvanized PAINTGRIP sheets cover the top and sides of this refrigerator on wheels.

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Consider this paint-gripping galvanized metal for your war jobs. And remember it when you plan the new products you will make when peace comes. For more information write The American Rolling Mill Co., 1091 Curtis St., Middletown, O.

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*The American  
Rolling Mill Company*

## Maritime Awards in the South

Eleven southern shipyards and other enterprises received special recognition from the Maritime Commission in the month of April, some of them receiving

more than one award. All of them have previously received the coveted "M" pennant for outstanding performance on war contracts.

Bethlehem-Fairfield Shipyard, Inc., Baltimore, Md., now flies the Gold-

Wreathed Merit Eagle Pennant, while the Merit Eagle Pennant was given to the Houston Shipbuilding Corp., Houston, Tex. A. P. Green Fire Brick Co., Mexico, Mo., and Enterprise Wheel and Car Corp., Bristol, Va.-Tenn., both received third star awards, while J. A. Jones Construction Co., Inc., Brunswick, Ga., took second and third star awards.

Second star awards went to Pennsylvania Shipyards, Inc., Beaumont, Tex., Beaumont Iron Works, Beaumont, Tex., and Goldens' Foundry and Machine Works, Columbus, Ga.; J. A. Jones Construction Co., Inc., Panama City, Fla., received double honors with first and second star awards, and the Baltimore Copper Paint Co., Baltimore, received the first star award.

## Southern Editors Speak

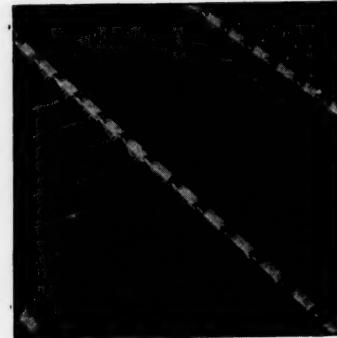
(Continued from page 128)

all right for a long time. It's what we're fighting to keep all right for a long time to come. Leave him be. Just have him there to say 'Hello' when we return—dressed the way we know him.

"It's swell that our first few months in civvies are getting some forethought instead of the hindthought—or no thought—of the last time.

"When that period is over all that we want is to be free to work at what we can do best—with an employer who is free to expand—all of us managed by someone who know how to weld us into a going business to the end that our work and risk, in a fair, open market, will bring reasonable returns that we'll be free to use for building family and country into a still more wondrous future."

Doesn't it make sense? — *Bluefield Daily Telegraph*.



## GARY WELDED GRATING

**Square edge bars for safe footing.  
Hexagonal cross bars for neat appearance.**

**Gary-Riveted Grating :: Gary Stair Treads**

**Send for attractive paper-weight sample, which is yours for the asking.  
Catalogues upon request.**

**STANDARD STEEL SPRING CO., 2700 E. 5th Street, GARY, INDIANA**

## JOHNSON *Music Wire*

Wire of a thousand uses. Drawn under strict laboratory control all the way from original steel to finished product. When you specify Johnson XLO Music Wire you are certain of a high quality product in every respect.  
Note coil spring that comes to you on every coil of wire.  
Stock sizes .003" to .200" dia.  
In coils or packages.

**JOHNSON STEEL & WIRE CO., INC.**  
WORCESTER 1, MASSACHUSETTS

NEW YORK ATLANTA AKRON CHICAGO LOS ANGELES

## Coast Line to Build Cars

Construction of 1,100 all-steel box cars for the Atlantic Coast Line Railroad starts this month at the Bessemer, Ala. plant of the Pullman Standard Car Manufacturing Co., according to a recent announcement by F. O. Reemer, vice president of Pullman. The order was placed more than two years ago, but only recently was approved by the War Production Board. The amount of the contract was not announced officially, however it is understood to be approximately \$3,000,000.

Pullman is rapidly gathering materials to build the cars and expects to shortly reach a construction rate of about 20 cars daily. Each car will be 40.5 feet in length, having a 50-ton capacity. Although purchase of steel for the cars is a matter of WPB allocation, it is expected that most of it will come from the Birmingham area.

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# The KLINE IRON and Metal Co.

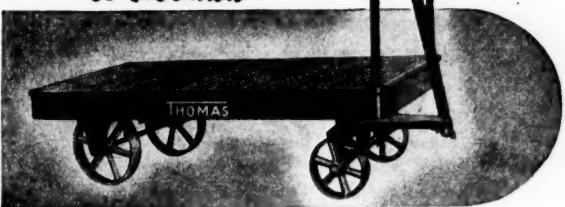
*Designers — Fabricators  
and Erectors*  
**Steel for Buildings and Bridges**

Now engaged 100% in Fabricating for U. S. Navy D-E Vessels and Landing Craft.



*Columbia, South Carolina*

## THOMAS TRUCK of Keokuk



## WAGON TRUCKS

- Ball bearing steel 5th wheel
- Steel angle 5th wheel supports
- Safety tongue will not drop
- Deck: Smooth seasoned 1" hardwood
- Superstructures removable or locked
- Wheels: Molded-on rubber or semi-steel

The series 2400 Thomas wagon truck, pictured above with type E superstructure. Corner pockets for steel tube stakes are standard. They serve as an interlocking device to assure lasting rigidity and strength. Series 2400 is made in 10 platform sizes and 10 capacities. Catalog No. 43 gives full description.

*Write for new Catalog No. 43*

THOMAS TRUCK & CASTER CO.

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NEBRASKA  
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NEW MEXICO  
HOTEL PARTON, ALBUQUERQUE

OKLAHOMA  
HOTEL DAVIS, OKLAHOMA CITY

SOUTH CAROLINA  
HOTEL WADE HARRIS, CHARLESTON

TEXAS  
HOTEL ALICE, AUSTIN  
HOTEL STONE, AUSTIN  
HOTEL SETTLES, SAN ANTONIO  
HOTEL BROWNS, SAN ANTONIO  
HOTEL LAGUNA, SAN ANTONIO  
HOTEL CORTEZ, SAN ANTONIO  
HOTEL MEXICAN, SAN ANTONIO  
HOTEL JEAN LOUISE, SAN ANTONIO  
CORONADO, SAN ANTONIO  
MAGNIFICENT, SAN ANTONIO  
HOTEL CALIFORNIA, SAN ANTONIO  
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HOTEL CALIFORNIA, SAN ANTONIO  
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VIRGINIA  
HOTEL MOUNTAIN LANE, ROANOKE

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**PERFORATED METALS**

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DEHYDRATING EQUIPMENT  
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WRITE FOR CATALOGUE

While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

*The Southern Hotel*  
BALTIMORE 2

# Jacksonville's Post-War Plan

(Continued from page 110)

The Jacksonville Chamber of Commerce had all the data on its manufacturing potentialities but desired facts about the backlog of demand for various goods and services. To obtain this a "V-Day Work-pile" sheet was mailed to Jacksonville firms. At the same time an Employers Check Sheet was enclosed so that an estimate could be made of Jacksonville's post-war employment picture.

An appraisal of Jacksonville's needs based on the returned questionnaires might be of interest. Remember that these figures are what Jacksonville firms need immediately, and therefore will buy at the earliest opportunity:

New buildings and additions to old .....	\$11,074,000
New machinery .....	2,075,000
Transportation equipment .....	2,110,000
Services (painters, electricians, carpenters, etc.) .....	1,651,200
Office equipment .....	361,000
Air conditioning .....	255,000
Miscellaneous .....	3,405,000
	<hr/>
	\$20,931,200

These figures indicate that Jacksonville will do its full share to bridge the reconversion chasm.

But what about employment? It is estimated that 20,000 persons will want jobs in Jacksonville after the war. Will there be enough jobs available? The returned "Employers Check Sheets" furnish a guide for optimism. Sixty per cent of the employers state that they expect to have more people on their payrolls after the war than they had before the war; 26% say just as many employees; and 14% say they will have less employees.

Nor has the Chamber of Commerce rested here. It is determined to exploit all possible avenues to insure that Jacksonville remains a prosperous city in which to live and to work. Accordingly, various post-war planning divisions have been formed within the Industrial Department. These divisions are

manned by far-sighted, aggressive local business men. The *Established Industries Division* is composed of several committees, each representing a definite type of local manufacturing — shipyards committee, electric industries committee, etc. These men meet to discuss their common problems to the benefit of all. Some studies now before them are:

- 1.) How may present markets be increased?
- 2.) What problems must we face on return to peace?
- 3.) What new products can be manufactured for local markets?
- 4.) What products shipped into Jacksonville can be manufactured here?

The function of the *New Industries Division* is to investigate the economic feasibility of locating certain new industries in Jacksonville. To aid in this study the following summary of plant location considerations is used as a guide:

- 1.) Availability of necessary raw materials.
- 2.) Nearness to market.
- 3.) Competition.
- 4.) Labor supply and labor problems.
- 5.) Water, power and fuel requirements.
- 6.) Local and state taxation.
- 7.) Transportation facilities.
- 8.) Nearness of related industries.
- 9.) Climatic factors.
- 10.) Long term growth, or decline, picture of community.

Thus far this division has unearthed a number of prospects, several of whom have evidenced definite interest in locating a plant in Jacksonville in the post-war period.

Since Jacksonville sits athwart the highway to Latin-America, a *Foreign Trade Division* has been organized to help develop our foreign trade. Committees have studied assigned countries and have written hundreds of letters, in Spanish, to Chambers of Commerce, Trade Associations and private firms in Central and South America. The approach has been from a "You" attitude. "What have you to sell?" "What do you want to buy?" "How

do you want it handled here?" Currently answers from practically all the Latin-American countries have been received. Information on what they want to sell and to buy is in our files. Contacts have been made through which we can move fast when the need arises. One manufacturer from Monterrey, Mexico, traveled here to talk with us. Recently we received a letter from an importer in Peru who said he would visit us in May.

Since this exchange of goods with Latin-Americans will be effected by steamship and by aeroplane, we must provide adequate shipping and aviation facilities. The *Aviation Committee* has already done a tremendous amount of spadework in this direction. It cooperated with the City Commission to have an aviation survey made by an aeronautical consultant and is now studying this report to determine the best procedure in order to enact proposed recommendations. It prepared a brief for the Civil Aeronautics Authority on the "Great Lakes to Florida Case." It has conferred with representatives of the eighteen airlines which have filed applications to fly to Jacksonville.

The *River and Harbor Division* has been just as active.

With rail, highway, steamship and aviation lines all converging in Jacksonville, it is logical for the city to be a leading distribution center in the Southeast. There are several hundred distributors already located here but the *Wholesale Distribution Division* is presently compiling a list of all distributors and wholesalers in order to determine if there are any gaps which should be filled.

No economy is complete without the inclusion of agriculture and of research. Accordingly, divisions in these two fields have been organized and are hard at work. A project currently sponsored by the *Agriculture Division* is the planting of various types of soy beans to determine those types which can be grown commercially here. The *Research Division* in conjunction with the Chemi-

(Continued on page 148)

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OR

# Southern Ice Company

Charleston, South Carolina

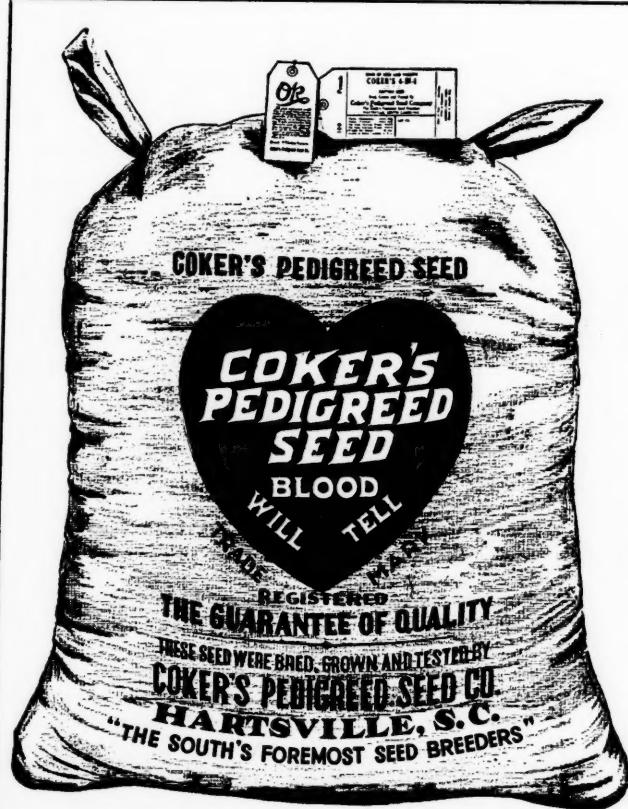
Summerville Ice and Fuel Plant—Summerville, S. C.

Hygeia Ice and Fuel Plant—Spartanburg, S. C.

Greenville Ice and Fuel Plant—Greenville, S. C.

Columbia Ice and Fuel Plant—Columbia, S. C.

Easley Ice and Fuel Plant—Easley, S. C.



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Coker's  
Pedigreed Seed Co.

Established 1902

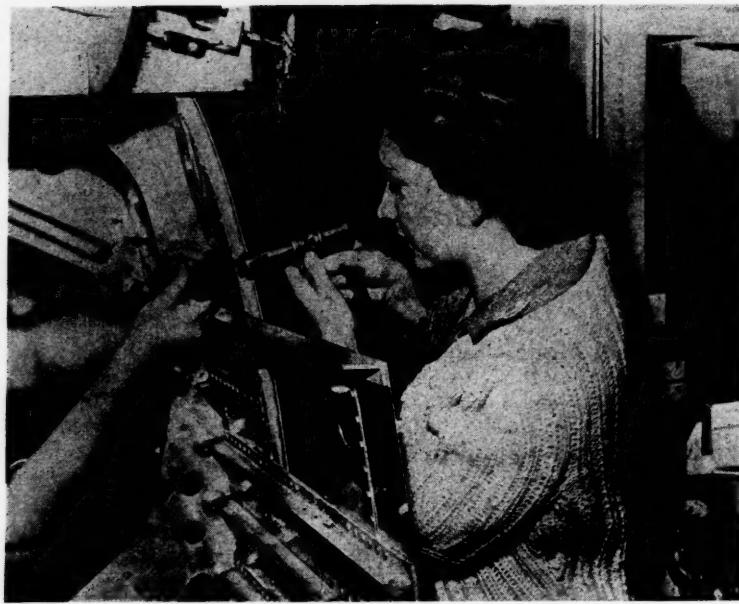
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Breeders of Superior Varieties of

COTTON  
CORN  
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WHEAT  
RYE  
TOBACCO

"The South's Foremost Seed Breeders"



## Air Power Tools

**E**XAMINE one of our powerful bombers sometime—if you can get that close to one—and notice the rivets. You may wonder how they can possibly get them all headed on thousands of these air giants every month. They do this, however, and if more planes are needed, over and above what we are now producing, that can be handled, too.

The riveting job on modern aircraft not only calls for speed but it is also a production operation requiring the utmost of specialized skill and tools. The rivets are small, the foundation is not always as solid as a steel bridge-girder, and the surface of heads must not contribute materially to wind resistance when the craft is in flight.

To accomplish the desired results, the riveting hammer must have two qualifications: it must hit hard and fast and it must be small and light. The light weight and small size are both necessary if wartime manpower and womanpower are utilized to the fullest extent and with maximum efficiencies. Many hundreds of women, normally below the standards of strength and durability of the average man, are successfully handling the important riveting operations on aircraft, chiefly by virtue of the light weight of the riveting hammer.

In addition to the light weight and portability, the riveting hammer must accommodate itself to small spaces, difficult angles and continue under such conditions to give high performance.

Compressed air operated riveting hammers offer the qualities necessary and are today employed by the thousands on every type of plane being made. Moreover, the skillful handling of riveting operations is today in the hands of those who would not be able to operate a heavier and larger tool. Plane production has thus maintained its tremendous increase with no bottleneck developing in this time and labor consuming stage of construction.

In weight, the compressed air riveting hammers used on aircraft, range from a fraction over two pounds to four pounds. Naturally, no one weight or type of air riveter will serve all the riveting operations on a plane. The size of the rivet, the material and its relative hardness are among the determining factors which tell what size hammer and at what speed it should be operated.

The term "fast hitting" as used in connection with light compressed air riveting hammers, is relative. What might be fast for one might be relatively slow for another.

However, the air riveter is especially adaptable to these variations. Generally speaking, riveters ranging up to 2,500 blows per minute are termed "slow hitters," while 2,500 to 5,000 blows per minute could be considered in the fast hitting category.

The obvious flexibility of compressed air riveting hammers is a determining factor in their selection for aircraft construction. In addition to their adaptability to the many and various operations inside and outside of the plane, they are simple to operate and easy to handle. Moreover, the power for these air tools is derived from plant facilities which must be there for other operations. Thus, the large scale production justifies their use from the standpoint of economy, since a compressor plant is vital to the efficient operation of other production steps. Grinders, reamers, hoists, paint spray guns, air chucks, chippers and power brushes—these and other tools, more suited to compressed air power, make compressed air a necessary part of production and reduce overall unit power costs as the consumption increases through their use.

Every major aircraft maintenance field is equipped with compressed air. Even at advanced repair bases in Europe and in the Pacific, compressors are standard equipment, and the air powered tools are here doing the same efficient job that they are doing on the aircraft production line.

With hundreds of thousands of small rivets on every fighting plane; with production close to a hundred thousand planes per year; with the lightweight compressed air hammer hitting a hundred or so blows on each rivet head—it looks like a big job. It is.

### High Frequency Radio Subject of Baltimore & Ohio Studies

High frequency radio similar to that used in certain aircraft is being studied by engineers of the Baltimore and Ohio Railroad in collaboration with the radio division of Bendix Aviation Corp. The B. & O. will build five radio transmission stations for its route between Baltimore and Pittsburgh. Four of these will be mobile and about the size of a household floor model set. The experiments, according to A. S. Hunt, general superintendent of communications, are being made to determine the best type of radio equipment applicable to railroad operations.

## *Santee River Red Cypress*

**THERE ISN'T ANY FINER!**

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from our timber reserves of some  
80,000,000 feet.

## **DORLENSON LUMBER CO.**

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*Holly Hill Lumber Co.  
Holly Hill Cypress Co.*  
HOLLY HILL, S. C.

**SOUTHERN PINE  
RED CYPRESS  
SOUTHERN HARDWOODS**

Planer, Resaw and Dry Kilns at All Plants

Dowicide Dipped —

Capacity 150,000 Feet Daily

MILLS:

DENMARK, S. C.

KINGVILLE, S. C., FOUR HOLES, S. C.

Established 1898

# **COLUMBIA LUMBER & MANUFACTURING. CO.**



Manufacturers of

**ARCHITECTURAL MILLWORK  
and  
LUMBER**

Distributors of

**STOCK WOODWORK  
and  
BUILDING MATERIALS**



## **COLUMBIA, S. C.**

**WAR BUSINESS NOW  
YOUR BUSINESS LATER**

(WE HOPE)

## He'll Eat His Spinach and Like It



Reproduced by Courtesy of New York Herald Tribune

## Charleston & Western Carolina a South Carolina Railroad

(Continued from page 105)

Coastal Southeast and of Florida to the people of the great consuming centers.

Although 40 per cent of its traffic is coal, it is on the fruit and vegetable trains that the traffic really rolls at speed that is breathtaking. A trainload of "freezers" from the Coast Line at Yemassee, S. C., speeds

without interruption except for reicing and train service to Spartanburg, where another Coast Line family line, the Clinchfield, hauls it on en route to the populous regions of the Mid-West.

The rich agricultural section of the road embraces the vegetable region of the Coastal plain in Beaufort, S. C., where hundreds of cars of

lettuce, potatoes and other crops originate yearly. A little further up is the Allendale-Hampton, S. C., section, one of the watermelon centers of the United States. Throughout the next 100 miles there is a vast cotton and livestock belt, while near the Western terminus of the C. & W. C., Spartanburg, S. C., a new peach belt is coming to the front so fast that the 15 or 20 cars handled a few years ago have now grown to 600-odd cars a season.

The story of the industries on the C. & W. C. is the story of the diversified manufacture in the South. At Hampton, S. C., the Plywood Plastic Corporation's vast new plant is one of the largest of its kind in the world. In Augusta, Ga., every textile mill—the King, the two mills of the Graniteville Company (Enterprise and Sibley), the Riverside and the Blanche, are on its tracks. One of the largest raw lumber plants in this section is at McCormick, S. C., owned by the Dorn Brothers, and the textile mills at Iva, S. C., the Orr, Gluck and Anderson Mills at Anderson, S. C., the Grendel Mills at Greenwood, the Laurens and Watts Mills at Laurens, Woodside Mills at Fountain Inn and Simpsonville, S. C., and the Camperdown Mills in Greenville, S. C., are on its line. The Camperdown is unusual in that it is the only mill in the city limits of Greenville and one of the oldest mills in the South. Along the line from Laurens to Spartanburg are the Riverdale Mills at Enoree, the Mills Mill No. 2 and the Brandon Mills at Woodruff, and the Arkright Mills at Spartanburg.

One of the more interesting installations is the hydro-electric plant at Buzzard's Roost on the Saluda River, near Greenwood, S. C.; and a remarkable industry is the Laurens Glass Works, makers of bottles and other glass products. Every pound of the silica, soda and other raw materials must be shipped in to Laurens for this plant—yet it competes and prospers, so fine is its machinery and so skilled its management and workmen. Six cars of raw materials go in for each car of finished products that go out. At Augusta, Ga., it serves the largest brick plants in the Southeast, those of Merry Brothers.

(Continued on page 144)

# UNIVERSITY OF SOUTH CAROLINA

## *Columbia*



**Established 1801**

The University of South Carolina combines the soundness of the traditional liberal arts institution with the varied opportunities of a modern, progressive university. More than 400 courses are offered in 23 schools and departments.

Normal peacetime enrollment is 2,100 men and women. Today the University is training 1,000 civilian students and 1,200 Naval trainees. Facilities are utilized as fully as possible to further the war effort, but service to civilian students remains unimpaired.

*One of the South's Most Distinguished Institutions*

## WINTHROP

SUMMER SCHOOL - - - June 5 to August 18

Courses for teachers carrying college credit run for three, six, or eleven weeks.

Graduate credit will be offered men and women.

**Acceleration.** Students in good standing can save almost a full semester by attending an eleven-weeks' summer session.

**Courses for high school graduates.** Many regular courses are offered for beginning freshmen.

**Courses for other undergraduates.** Courses are Offered in almost every department.

### Expenses

Matriculation fee . . . . .	\$ 5.00
Tuition (per semester hour) . . . . .	4.00
Room and Board:	
Full session . . . . .	85.00
Six weeks . . . . .	45.00
Three weeks . . . . .	25.00

**Excellent Board — Cool  
Comfortable Rooms**

### Features

1. Demonstration school for teachers.
2. Music—Master classes and undergraduate work.
3. Three-week workshop course—June 12 to 30.
4. Professional Institute for Teachers.
5. Excellent recreational program; use of all college equipment and buildings.

## WINTHROP COLLEGE

ROCK HILL, SOUTH CAROLINA

MOWAT G. FRASER, *Acting President and Director of the Summer School*

## South's Construction Rises

(Continued from page 104)

Distillery, let a construction contract.

O'Sullivan Rubber Co., Inc., Winchester, Va., executed a contract with the Defense Plant Corporation for additional equipment to cost \$250,000. Much of the country's \$750,000,000 synthetic rubber plant construction was in the South, with most of the section's share concentrated in the southwestern states of Texas and Louisiana. The new rubber-from-alcohol plants are situated in Kentucky and West Virginia.

Restrictions on railroad operating construction such as tunnels, overpasses, underpasses and bridges not exceeding \$2,500 in cost were lifted by a War Production Board order last month. The action, as explained by the authorities was to relieve the railroads from the much disputed Order L-41. Several railroad improvements were noted during the month. Louisville & Nashville Railroad let the contract for a de-icing shed at Montgomery, Ala. Texas & Pacific Railroad made the award for a new shop at Marshall, Texas.

One of the important developments from a post-war angle was the announcement that Monsanto Chemical Co. will make an expenditure of \$40,000,000 after the war for new plant construction. The Alexander Motor Co., Dallas, Texas, revealed its post-war plan to erect a \$500,000 automobile sales and service building.

The lumber industry was active in sev-

eral instances. Wiles-Chapman Lumber Co. and Gravios Planing Mill Co., both of St. Louis, made moves in this direction.

Rural electrification work showed an upward trend. Awards for such work totaled \$12,000, but funds were announced as being available for projects in Arkansas, Louisiana, Missouri and Oklahoma.

In the private power field, Georgia Power Co., Atlanta, prepared to go ahead with initial construction on the \$4,000,000 addition that will raise capacity of Plant Atkinson, at Bolton, Ga., to 300,000 horsepower. Arkansas Power and Light Co. during the month obtained the state permission to construct a 100-kilovolt transmission line.

Shipyards in Florida, Louisiana and Maryland were mentioned in the month's construction news. These were Merrill-Stevens Dry Dock & Repair Co., which plans a pier extension; Delta Shipbuilding Co., Inc., which awarded the contract for new buildings, and Bethlehem-Fairfield Shipyard, Inc., the owner of a new headhouse addition.

### N. and W. Wins Safety Award

The Norfolk and Western Railway Company has been designated winner by the National Safety Council in the 1943 Railroad Employees National Safety Contest for Class I standard railroads which operated more than 50,000,000 em-

ployee man-hours during 1943. The N. & W.'s winning casualty rate was 4.88 per million man-hours worked. The N. & W. also won first place in 1941, when its employees made the best safety record among railroads which operated from 20,000,000 to 50,000,000 employee man-hours. Systematic accident prevention and safety education on the railway during the past 32 years have improved employee safety by 90 per cent, and have prevented accidents to many thousands of employees, according to N. & W. officials.

The Norfolk and Western is a three-time winner of the coveted Harriman Memorial Gold Medal for the outstanding safety record among Class I railroads of the United States. The railway won this medal for its safety records in 1926, 1938 and 1940. In addition, the Scioto Division of the N. & W. won the Harriman silver medal for the best division safety record in 1915. S. F. Small, vice president-assistant to president, Norfolk and Western, and D. W. Naff, N. & W. superintendent of safety, and officials of other winning railroads in various contest groups, received the awards for their safety achievements at an award dinner in Chicago on May 1.

### Allis-Chalmers Bulletin Describes Texrope Products

A new 44-page bulletin describing its complete line of fractional horsepower Texrope V-Belts and Sheaves has been released by Allis-Chalmers Manufacturing Co., Milwaukee, Wisc. Bulletin B6249 offers simplified engineering data for fractional horsepower drives. Horsepower ratings are based on driven revolutions per minute and on belt velocity.

# SOUTHERN STATES

LUMBER COMPANY, INC., LAURENS, S. C.

### WHOLESALE SERVICE

Flooring — Finish — Roofers — Siding — Framing  
Dimension Stock — Lath — Ceiling

Call us 704 and 705



## "BUILD WITH BRICK"



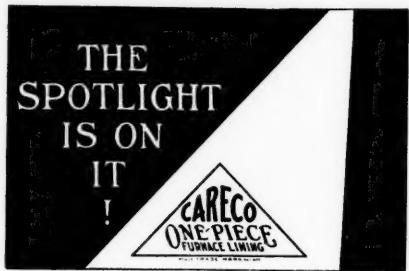
We Manufacture Face Brick in Colors and  
Textures to Serve the Demands for  
All Types of Architecture.



## Guignard Brick Works



FACE BRICK - COMMON BRICK  
GLAZED BRICK - HOLLOW TILE



CARECO One Piece Furnace Lining is rapidly sup-  
planting fire brick as a boiler furnace refractory.

It increases the life of the furnace, lasting from two to  
three times, often four to five times, longer than fire  
brick.

Installation cost is low, only common labor being  
required to install it.

Low maintenance cost. Boilers may be operated for  
more than a year — often two to three years — without a  
shutdown for furnace repairs.

*Let us quote you on your requirements.*



## CAROLINA REFRactories COMPANY

HARTSVILLE, SOUTH CAROLINA

MAY NINETEEN FORTY-FOUR

## SOME OF THE NATURAL RESOURCES OR RAW MATERIALS NEAR PLANT SITES

*in the area we serve---*

### KAOLIN AND CLAYS

*in Aiken County*

### PEAT, SAND AND SILICA

*in Colleton County*

### LIMESTONE

*in Berkeley, Dorchester and Orangeburg  
Counties*

### PHOSPHATE ROCK

*in Beaufort, Charleston and Colleton  
Counties*

Low Cost Industrial Water in large quantities in Berkeley, Charleston and Orangeburg Counties.

Available in Charleston County—a large supply of sulphuric acid, phenols, lignan, kraft paper, turpentine, asphalt, water gas tar and rosin soap.

### EXCELLENT PLANT SITES

### RAIL, HIGHWAY, AIR, INLAND WATERWAY AND OCEAN TRANSPORTATION FACILITIES

*For additional facts without  
costs or obligation, write*

*Industrial Department*

## South Carolina Power Company

CHARLESTON (H), S. C.

## Chemical Wood Treatment

(Continued from page 120)

addition of urea to dimethylolurea. Both are commercially available and inexpensive and are now being produced on a large scale.

The methylolurea is impregnated into the structure of the wood in a water solution. It reacts with components of wood to form hard, water-insoluble, unmeltable resins within the lumber being treated. Natural acids in the timber initiate the reaction. Kiln drying speeds the process. The timber or lumber thus treated becomes markedly harder, stronger, stiffer and more durable. The natural tendency to warp, swell or shrink with humidity changes is eliminated, say the originators of the process. They further state that poplar becomes harder than hard maple, which in turn can be made harder than ebony.

Widespread use of the new process, it is claimed, will make many soft and low cost species available for uses to which they have not hitherto been suited. The soft woods, such as tupelo gum, soft maple, yel-

low poplar, a number of pines and other woods can be treated with the process to increase their range of usefulness, releasing hard maple, oak, walnut and other costlier woods to other uses. In turn, these woods, too, can be improved.

Furniture manufacturers, using woods treated with the new process, can ship their products throughout the world, to humid tropics or dry areas, with assurance that drawers and doors will continue to operate smoothly and remain close fitting under all climatic conditions. Color also may be imparted permanently throughout the wood by mixing a dye with the impregnated chemical. Light colored woods can take on the hues of cherry, rosewood or the rich depth of mahogany. Likewise, the wood can be colored brilliant reds, greens or purples. Wood that has been treated has a surface finish that is highly resistant to mars and scratches.

Other manufactured articles that can be greatly improved by the use of the transmuted wood include agri-

cultural implement parts, laundry and chemical equipment, shoe lasts, tanks, sanitary ware, millwork, screen, window and door sashings, veneers, wooden heels, machinery parts, loom shuttles and many others. Of especial interest to the textile industry will be the manufacture of shuttles, spindles, bobbins and spools from transmuted woods. Dogwood, persimmon and similar rare species can be replaced by less costly woods.

Company engineers say the treating installation involves no new type of equipment and simple, easily operable units can be installed at relatively low costs for the treatment of small items.

### Barber-Greene Changes

After 27 years of service with Barber-Greene Co., Aurora, Ill., practically all of that time as secretary, D. G. McIlwraith has retired. Mr. McIlwraith joined Barber-Greene within a year of the founding of the company to complete the founders' organization. For the past two years much of Mr. McIlwraith's time has been taken up with the office building expansion program in Aurora. John M. Spence has been elected to the board of directors and to the office of secretary. Mr. Spence joined Barber-Greene in 1918 and for the past 25 years has been chief auditor.

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War demands must come first for us all and our company is doing all in its power to meet Government demands for lumber. We are glad to announce that about 25 per cent of our production, totaling about Five Million feet annually is . . .

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and since certain items of Cypress are exempt from war restrictions it may be possible that we can help meet some of the needs of commercial buyers.

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*Tidewater Red Cypress and Southern Hardwood*

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R. E. EBERT, *President*

J. P. WILLIAMSON, *Vice-Pres.*

J. M. MOCK, *Secretary*

## New Sinclair Refinery

(Continued from page 118)

gasoline stocks. This thermal cracking still also produces a gas fraction for further processing into high octane blending stock.

C.—Catalytic cracking still for cracking light gas oil into high octane gasoline stock and for producing gas which will be combined with that from the thermal unit for conversion into high octane blending agent.

D.—Alkylation plant in which gas fractions from the cracking units are chemically rebuilt into high octane material used in aviation gasoline.

In order to complete the refinery a great amount of auxiliary installations have been required. These are in addition to the major refining units: tankage, pump houses, oil lines, boiler house and steam supply lines, laboratories, ethylizing plants, loading racks for railroad cars and trucks, cargo loading lines and pumps, water supply system with cooling tower, machine shop, storehouses, offices, etc., etc.

## Streamlined River Liner

(Continued from page 114)

where 18,000-ton C-3 type war liners are built.

The Decatur yard constructed the first ocean-going ships and largest ever built on the Tennessee—coasters 258 feet long. These ships, as well as barges, tankers, dredges and other floating equipment, were built for use of the Army, Navy or our Allies.

This refinery, while designed and built as a war project, is so arranged and located as to make it a successful plant also for peace time. Although its major product will be aviation gasoline during the war, it can and will manufacture high grade gasolines for civilian use. The location at Corpus Christi, with its connections for loading sea-going tankers, is such that large post-war markets are available with low transportation costs since Florida and the East coast of America as

well as the West Indies, Europe, and Africa, are to a great extent, supplied with oil from Texas ports.

## The C. & W. C.

(Continued from page 144)

clay products (its heaviest on-line loading), textiles, glass and glass-ware.

It funnels southward thousands of cars of coal, keeps pace in the vast oil movement that is keeping the nation's motor industry running, and brings in the varied manufactured products which its various communities need.

It's a big job, but the railroaders of the C. & W. C. have pitched in and done it. The terminals seem no fuller now than in other days—in sharp contrast to the time when there was no room on the yards during the First World War.

Railroaders learned a lot then—and not the least of their problems was to prevail upon shippers to keep cars rolling instead of standing at loading and unloading platforms.

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A South Carolina company, established in 1902, which has been an important factor in the development of this great state.

Total income in 1943 from premiums, \$2,971,549.26; other sources, \$356,720.69.

Total insurance in force, Dec. 31, 1943, \$95,215,295.38. Paid policy holders during past five years \$2,479,996.97.

*A policy suitable to every need.*

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HOME OFFICE  
*Carolina Life Building*  
**COLUMBIA, SOUTH CAROLINA**

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## Jacksonville's Post-War Plan

(Continued from page 134)

cal Committee of the New Industries Division has recently written a booklet called, "The Chemo-Plastics Industry in Northeast Florida." This booklet points out the natural advantages of raw materials, markets, climate, terrain, labor and location of Jacksonville for the location of chemical and plastics industries in this area.

To summarize briefly, this is Jacksonville's plan for post-war prosperity:

1. Know what has been manufactured in your community.
2. Determine what additional items can be manufactured.
3. Define the problems which you will have to meet when the war ends.
4. Outline as far as possible the solution to these problems.
5. Form groups of interested business men to pool their knowledge and experience towards the solution of various problems.
6. Provide expert aid to solve

technical and engineering problems.

Jacksonville believes that the termination of the war will mark the beginning of its best period of growth and prosperity. If other communities follow Jacksonville's example, our returning veterans will find plentiful employment.

culture and industry are linked hand in hand.

In South Carolina there are many opportunities for profitable industrial development by growing more crops and turning the surpluses into industrial channels. Because of the resources in her mines, forests, fields and streams, her excellent transportation facilities by railroad, highway, air and water, no other state in the country surpasses South Carolina in latent possibilities.

It should not require a prophet to say with assurance, "That state will go far."

## South Carolina's Outlook

(Continued from page 107)

are again given the green light for wide industrial expansion is the production of more glass from her excellent sands, pottery from the clays and the production of fresh and canned poultry.

It has been estimated that from 86 agricultural products come 133 different materials from which 240 items can be manufactured for more than 400 uses. I think the statement a most conservative one, but these figures are indicative of the possibilities. It is a fact that agri-

## Southern Kaolin Production

As in previous years, Georgia and South Carolina produced the greater proportion of the nation's kaolin or china clay in 1943, the two states contributing 91 per cent of the nation's output. Georgia produced 79 per cent, South Carolina 12. Although production declined approximately 2 per cent, prices were slightly higher. During 1943 the paper industry consumed 59 per cent of output; refractories, 16 per cent; pottery, 9 per cent, and the remainder was distributed among the rubber, paint, cement, tile and kiln furniture industries.

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STONE



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tions.

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## Southern Industrial Expansion

(Continued from page 117)

**FREERPORT** — Dock — Dow Chemical Co., plans barge landing dock in Freeport harbor.

**FORT WORTH** — Warehouse — Great Grain & Seed Co., erecting warehouse.

**GARLAND** — Additional Building — Continental Motor Corp., Detroit, Mich., plans additional buildings and 2 additions to 2 present buildings.

**HOUSTON** — Abattoir — Paully Packing Co., has completed plans for abattoir.

**HOUSTON** — Loading Docks — Fulton Construction Co., has contract for loading docks for Sheffield Steel Co.

**HOUSTON** — Office Building — J. G. White Co., 9700 Avenue Q, Houston, has contract for office building for Eastern States Petroleum Co., Second National Bank Bldg.

**HOUSTON** — Plant — The Golden Age and Pepsi-Cola Bottling Co., acquired building at 3900 Harrisburg; plans expansion at cost of \$500,000.

**HOUSTON** — Plant — Douglass Sulphur Co., erect plant building at 12 Daly Place, to replace burned structure.

**HOUSTON** — Building — Texsteam Corp. acquired 32 acres on Hughes St., adjoining present plant; has tentative plans for shop building.

**HOUSTON** — Rebuilding — W. S. Bellows Construction Co., has contract for rebuilding sulphur plant, Douglass Sulphur Co.

**LUFKIN** — Machine — Southland Paper Co., seeking permission to install an additional machine.

**MARSHALL** — Shop Building — Russell J. Prydon, Dallas, has contract for construction of shop for Texas & Pacific Railroad Co.

**MISSION** — Addition — Wallace C. Bohannon Canning Co., will erect processing plant addition.

**MISSION** — Packing Plant — Mission Citrus Growers Union, will erect packing plant.

**PHARR** — Processing Plant — War Production granted permission to L. L. Bonnett

& Roger V. Ray, Donna, to erect processing plant.

**PORT NECHES** — Building — The Lummus Co., will construct reinforced concrete and masonry plant building; owner builds.

**TEXAS CITY** — Tanks — Fretz Construction Co., 200 Eastwood St., Houston, has contract for thickener tanks for Texas City Tin Processing Co.

### VIRGINIA

**MANASSAS** — Plant — J. Carl Kincheloe, proprietor of Birmingham Dairy, constructing dairy plant with capacity of pasteurizing 2,000 gallons of milk per day.

**SCOTTSVILLE** — Rayon Cord — Defense Plant Corp. closed contract with United States Rubber Co. of New York, at \$2,240,000 for plant for production of rayon cord.

**VERONA** — Weaving Mill — Staunton Textile Corp., Staunton, granted permission by WPB to complete part of the remaining construction on its weaving mill.

**WINCHESTER** — Equipment — Defense Plant Corp. executed contract with O'Sullivan Rubber Co., Inc., to provide equipment at plant in Winchester; cost \$250,000.

### North Carolina Kyanite

Kyanite suitable for use in the glass industry, that is, containing less than 0.15 per cent of iron oxide (as  $Fe_2O_3$ ), has been produced by the Yancey Kyanite Co. at a mine located  $2\frac{3}{4}$  miles southeast of Burnsville, N. C. This mine, which has been the only source of "glass grade" kyanite in the county, has recently been studied by representatives of the Geological Survey, United States Department of the Interior. According to an announcement from the office of Survey Di-

rector William S. Wrather, a geologic report, accompanied by maps and sections, describing the geology of the mine and of closely adjacent areas has been placed in open files in the offices of the Geological Survey in Washington, D. C., and in the McCall Building, Spruce Pine, N. C. The report is available, in these offices, for consultation.

The geological investigations upon which this report is based were made to determine the relations between the geologic structure, mode of occurrence, and variability of the kyanite content of the ore body. The use of kyanite in glass making produces a heat-resistant glass of high chemical durability.

### New Officers Picked by Cotton Manufacturers Association

At the recent annual convention of the American Cotton Manufacturers Association, held in Atlanta, Ga., W. H. Hightower, president of the Thomaston, Ga., cotton mills was elected President. Other officers elected were S. W. Cramer, president of the Cramerton, N. C., mills, first vice president, and W. S. Montgomery, president of Spartan Mills, Spartanburg, S. C., second vice president. W. M. McLaurine was reelected secretary-treasurer.

### Hyster Agent Appointed

R. C. "Dick" Chambers, formerly of Joseph Ryerson and Sons, Chicago, is the new purchasing representative in Cleveland for Willamette Hyster Company, Portland, Ore., and Peoria, Ill., manufacturers of tractor winches, hoists and industrial lift trucks. Offices have been opened in the Williamson building on Euclid Avenue. Chambers is well known in the steel industry.

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Manufacturers of

**HIGH PRESSURE BOTTLES**

TELEPHONE NO. 406

*Laurens, S. C.*

## Class I Railroad Income

(Continued from page 130)

value of road and equipment as shown by the books of the railways including materials, supplies, and cash.

This compilation as to earnings for the first three months of 1944 is based on reports from all Class I railroads, representing a total of 228,775 miles.

Total operating revenues in the first three months of 1944 totaled \$2,273,006,410 compared with \$2,090,997,773 in the same period in 1943, or an increase of 8.7 per cent. Operating expenses in the first three months of 1944, amounted to \$1,523,540,259 compared with \$1,282,021,989 in the corresponding period of 1943, or an increase of 18.8 per cent.

Class I railroads in the first three months of 1944 paid \$440,035,760 in taxes compared with \$422,044,571, in the same period in 1943. For the month of March alone, the tax bill of the Class I railroads amounted to \$160,132,077, a decrease of \$1,643,619 or one per cent below March, 1943.

Twenty Class I railroads failed to earn interest and rentals in the first three months of 1944, of which eleven were in the Eastern District, one in the Southern Region, and eight in the Western District.

### Eastern District

Class I railroads in the Eastern District in the first three months of 1944 had an estimated net income, after interest

and rentals, of \$60,000,000 compared with \$77,136,821 in the same period of 1943.

Those same roads in the first three months of 1944 had a net railway operating income, before interest and rentals of \$10,007,798 compared with \$129,327,054 in the same period in 1943.

Operating revenues of the Class I railroads in the Eastern District in the first three months of 1944 totaled \$909,283,734 an increase of 7.6 per cent compared with the same period in 1943, while operating expenses totaled \$713,315,889 an increase of 16.8 per cent above 1943.

Class I railroads in the Eastern District for the month of March alone had an estimated net income, after interest

and rentals of \$23,000,000 compared with \$31,274,597 in March, 1943. Net railway operating income, before interest and rentals, in March amounted to \$39,562,465 compared with \$48,907,365 in March, 1943.

### Southern Region

Class I railroads in the Southern Region in the first three months of 1944, had an estimated net income, after interest and rentals of \$30,000,000 compared with \$41,320,654 in the same period of 1943.

Those same roads in the first three months of 1944 had a net railway operating income, before interest and rentals

(Continued on page 154)

## CLASS I RAILROADS—UNITED STATES

### Month of March

	1944	1943
Total operating revenues .....	\$797,029,214	\$756,195,714
Total operating expenses .....	527,433,356	449,410,669
Operating ratio—per cent .....	66.17	59.43
Taxes .....	160,132,077	161,775,696
Net railway operating income .....	92,503,963	129,652,003
(Earnings before charges)		
Net income, after charges (estimated) .....	53,100,000	84,651,085

### Three Months Ended March 30, 1944

	1944	1943
Total operating revenues .....	\$2,273,006,410	\$2,090,997,773
Total operating expenses .....	1,523,540,259	1,282,021,989
Operating ratio—per cent .....	67.03	61.31
Taxes .....	440,035,760	422,044,571
Net railway operating income .....	262,610,155	341,145,341
(Earnings before charges)		
Net income, after charges (estimated) .....	146,500,000	209,449,720

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GOLDVILLE, SOUTH CAROLINA

153

## Class I Railroad Income (Continued from page 152)

of \$45,631,905 compared with \$38,256,046 in the same period of 1943.

Operating revenues of the Class I railroads in the Southern Region in the first three months of 1944 totaled \$355,434,169 an increase of 4.7 per cent compared with the same period of 1943, while operating expenses totaled \$203,785,660 an increase of 15.2 per cent above 1943.

Class I railroads in the Southern Region for the month of March alone had an estimated net income, after interest and rentals of \$10,000,000 compared with \$15,416,520 in March, 1943. Net railway operating income, before interest and rentals in March amounted to \$15,664,330 compared with \$21,457,850 in March, 1943.

### Western District

Class I railroads in the Western District in the first three months of 1944 had an estimated net income, after interest and rentals of \$56,500,000 compared with \$90,992,245 in the same period of 1943.

Those same roads in the first three months of 1944 had a net railway operating income, before interest and rentals, of \$107,970,452 compared with \$153,562,241 in the same period of 1943.

Operating revenues of the Class I railroads in the Western District in the first three months of 1944 totaled \$938,288,507 an increase of 11.5 per cent compared with the same period in 1943, while

operating expenses totaled \$606,438,710 an increase of 22.7 per cent above 1943.

Class I railroads in the Western District for the month of March alone had an estimated net income, after interest and rentals, of \$20,100,000 compared with \$37,959,968 in March, 1943. Net railway operating income, before interest and rentals, in March amounted to \$37,277,168 compared with \$59,286,788 in March, 1943.

## Safety Shop Serves Workers

Walter Kidde & Company of Belleville, N. J., manufacturers of carbon dioxide fire-fighting equipment, is beating accidents to the punch with a mobile safety shop which travels from plant to plant giving workers the opportunity to purchase protective clothing on the spot. Stocked with safety shoes, goggles, face shields, respirators, gas masks and such protective clothing as aprons, smocks, gloves and caps, the shop is rolled to workers at their machines where garments are fitted by the safety serviceman or arrangements are made for the cleaning or repairing of worn safety equipment. The safety shop stays three or four days in each plant.

## Largest C-O-Two Fire Control

The C-O-Two Fire Equipment Co., of Newark, N. J., recently completed installation, at Pine Bluff Arsenal in Arkansas, of what is believed to be the largest industrial carbon dioxide fire protection system in the world, according to Maynard A. Laswell, vice president of the company. The system protects bomb loading, reactor and storage operations at the Arsenal's incendiary bomb loading plant, one of the largest of its kind and is operated by Chemical Warfare Service. The system consists of 273 cylinders of carbon dioxide, each of 100 pound capacity, connected by pipes for conveying the carbon dioxide from the room in which the cylinders are installed to the spaces under protection. Carbon dioxide gas, to flood any of the areas

under protection, may be released by remote control from pull-boxes strategically located throughout the premises.

## New Perforated Sheet Basket for Ezy-Kleen Strainers

Increased straining area and rugged construction are outstanding features of the Blackmer Pump Company's new strainer baskets just announced by J. B. Trotman, general sales manager of the Grand Rapids, Mich. concern. The new baskets are constructed from heavy-gauge perforated sheet instead of the usual wire mesh, are available with various size openings, and are designed to withstand greater abuse than the old wire mesh screen.

The use of the perforated sheet increases the net straining area up to 10 times the pipe area, which exceeds by a substantial margin the recommendations of the Hydraulic Institute. Part of the gain in the straining area is achieved by the use of spot welding, made possible by the perforated sheet. The welding is not affected by higher temperatures as is soldering or brazing, and reduces friction loss. Another gain is realized through the use of the heavier material. Mr. Trotman pointed out that use of the perforated sheet eliminates the solid frame necessary to stiffen the old-type wire mesh screen, thus permitting liquids to flow more freely through the unit. The new perforated baskets will be used with all strainers in the Blackmer "Ezy-Kleen" line.

## Rubber-less Floor Runner Requires No Priority

So-Lo Works, Inc., of Loveland, Ohio, are making a new composition floor runner which is said to look, feel and wear like rubber, yet requires no priority since no rubber is used in its manufacture. According to the makers, the new product—Dura-Val Floor Runner—is low in cost and exceptionally long-wearing. It has a ribbed non-skid surface, is waterproof and washable; lays flat, and maintains its position under traffic. The manufacturers recommend it for general industrial use in machine shops, processing and production plants, etc., as well as in offices, stores, basements, theaters, etc.

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*MANUFACTURER OF*

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*Manufacturer of*

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### New Synthetic Rubber

A new type of synthetic rubber that promises to be suitable for making heavy-duty tires for trucks, buses and even military vehicles, has been developed by the research department of the Mathieson Alkali Works, it has been revealed by G. W. Dolan, president of the company.

"The new rubber is strong, tough and resistant to cuts and abrasion," said Mr.

Dolan. "But its outstanding characteristic is that, unlike GR-S, formerly known as Buna-S, which constitutes most of the rubber thus far produced in this country, the Mathieson rubber withstands elevated temperatures."

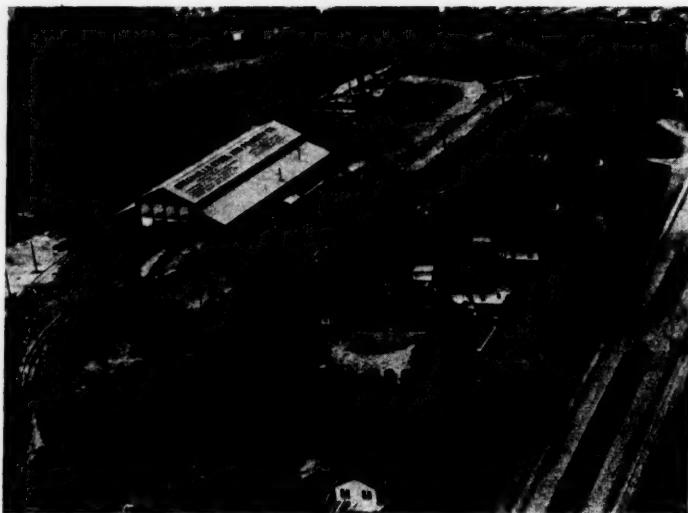
Tires subjected to heavy loads and high speeds become excessively heated in service and wear rapidly if made from rubber that weakens at high temperatures. Preliminary reports of comparative road

tests under the sponsorship of the Office of Rubber Director indicate that the Mathieson rubber stands up well under severe service conditions, according to Mr. Dolan.

Reports of independent laboratory tests show that the Mathieson rubber has greater resistance to heat, moisture, oil and kerosene than GR-S, and less permeability to gases. In certain of these respects, the laboratory tests indicate superiority to natural rubber as well. "We are told also," Mr. Dolan stated, "that our rubber has good milling properties."

"The Mathieson rubber is made of butadiene and a new chemical produced from readily available raw materials," said Mr. Dolan. "Its cost is expected to be about the same as that for GR-S on the same scale of manufacture."

"Our rubber is still in the development stage and, of course, plans for its production cannot be revealed," he concluded.



On Southern and P. & N. Railroads

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SPECIAL MACHINERY  
NICKEL-CLAD FABRICATION  
FIELD WELDING

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### Life Company Centennial

As the New York Life Insurance Company entered recently its 100th year of business, its president, George L. Harrison, pointed to the company's long record of continuous service to the public and industry, and the fact that through panics, epidemics and wars it has acquired priceless experience that could be obtained in no other way. This war is the fifth in the company's history and Mr. Harrison referred to the way in which the war problems of the '60's as well as those of World War No. 1 were successfully met.

Following the War between the States the company appointed a number of leaders in the Confederate Army to represent its field organization in the South. The company now has more than \$7,340,000,000 of life insurance in force under 3,178,000 policies and expects to finish its century of service with these figures greatly increased.

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# We're just little people

We're not brass hats.  
We're not big shots.  
We're just plain folks . . . but  
We're the folks who made this country!  
And we're the folks who will save it!

Save it from *two* things it's got to be saved from now.  
The first thing is the Enemy. The second's  
something that doesn't look very dangerous, but is.  
It's the danger of Prices Getting Out of Hand.

Here we are this year—after we've paid our taxes—with  
131 billion bucks in our pockets.  
But only 93 billion dollars' worth of goods to buy.  
That leaves 38 *extra* billion dollars.

Sure, the easy thing to do is to take that 38 billion  
and start running around buying things we don't need,  
bidding against each other . . . forcing prices up and up!

Then people want higher wages. Then prices go up some more  
—and again wages go up. So do prices again.

And then where are we?

But us little guys—us workers, us farmers, us businessmen  
—are not going to take the easy way out.

We're not going to buy a single, solitary thing that we can  
get along without.

We're not going to ask higher wages for our work,  
or higher prices for the things we sell.

We'll pay our taxes willingly, without griping . . .  
no matter *how much* in taxes our country needs.

We'll pay off all our debts now, and make no new ones.

We'll *never* pay a cent above ceiling prices.  
And we'll buy rationed goods only by exchanging stamps.

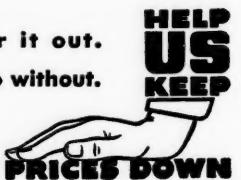
We'll build up a savings account,  
and take out adequate life insurance.

We'll buy War Bonds until it pinches the daylights  
out of our pocketbooks.

Heaven knows, these sacrifices are chicken feed,  
compared to the ones our sons are making.



Use it up... Wear it out.  
Make it do... Or do without.



## Static Electricity Controlled

Science is out to lick static electricity and reduce fire hazards in the nation's synthetic rubber tire industry. Some hints on dealing with the wayward cousin of man's most obedient servant, electric current, were given members of the rubber section of the Ohio Safety Congress at the Deshler Wallich Hotel recently by G. W. Penney, manager of the electro-physics department of the Westinghouse Electric and Manufacturing Company's Research Laboratories at East Pittsburgh, Pennsylvania.

Synthetic rubber tire makers are disturbed by fires on tire fabric production lines, most of them blamed on the igniting of highly volatile rubber cement by static electricity. The electricity is generated in the unrolling of layers of treated cotton or rayon tire cords, which are separated by canvas liners, and it clings to the cords as they go into the successive process which involves the use of rubber cement.

Officials of two of the nation's largest tire manufacturing companies have asked advice of Westinghouse research engineers on how best to combat this fire hazard.

Impregnating of the canvas cloth rolled between the cord layers was advocated by Mr. Penney as the most practical method now known of reducing the fire threat on these tire production lines. Other methods, he said, have proved insufficient or have interfered with the efficiency of the manufacturing processes.

"Artificially-created humidity in the factory helps to eliminate the formation of static electricity," Mr. Penney said, "but it affects the quality of the tires. Ways of neutralizing the static electricity have proved impractical. Grounding of the machinery parts is only partially effective. It would seem, then, that impregnation of the liners which are used over and over again will prove most practical as a fire deterrent."

Static electricity, the engineer explained, is created when friction causes electrons to be rubbed from the atoms in one object and adhere to an object of different characteristics. Such electrons are not very active and soon spend themselves, but while present are highly dangerous around volatile or explosive materials.

## E. A. O'Neal, Jr., Production Manager of Monsanto Phosphate Division

Promotion of E. A. O'Neal, Jr., to production manager of the phosphate division of Monsanto Chemical Co. has been announced by R. R. Cole, vice-president of the company and general manager of the division. Mr. O'Neal, who has been plant manager of Monsanto's Trenton, Mich., plant since September, 1940, will make his headquarters at Anniston, Alabama.

As production manager of the phosphate division, he succeeds Felix N. Williams, recently named general manager of Monsanto's plastics division at Springfield, Mass., succeeding John C. Brooks who died April 26. James A. Wilson, 34, assistant plant manager of the Trenton plant since September, 1942, has been named plant manager there.

Mr. O'Neal, who is 38, was born in Florence, Ala., went to work for the Swann Corporation in Anniston, Ala., predecessor of Monsanto's present phosphate division, following his graduation from Davidson College, Davidson, N. C., in 1926. In his first job he worked in the research department, later the production department, advancing to the positions of superintendent of furnaces, assistant plant manager, then manager of the plant.

Mr. Wilson, native of Roanoke, Ala., joined the Swann Corporation in Anniston, Alabama, predecessor of Monsanto, in July, 1931, starting as a research chemist following completion of post-graduate studies at the Massachusetts Institute of Technology. He was graduated from Clemson College, Clemson, South Carolina, in 1930.

He served in the research department until February, 1936, when he was transferred to the operating department as supervisor of sodium phosphates. In September, 1939, he was transferred to Monsanto's Carondelet, Mo., plant as assistant plant manager and served in that position until going to the Trenton, Mich., plant in the same capacity in September, 1942.

## Parity Seen Postwar Need

"Parity is a necessary fundamental to any successful postwar plan, but none of the published blueprints to date appear to embody this basic principle," says J. Carson Adkerson, president of the American Manganese Producers Association. "Refusal to adopt this principle in our economic planning will deny us a balanced national life and inevitably lead to depression."

"Our foreign trade is strongest when our own raw material producers have parity. The more we produce the more we import."

"One-half the business of the world is done in the United States. To help others, we must first maintain a balanced national income and a healthy buying power at home."

"Records show that for each one dollar of new wealth produced from American farms, forests and mines the turnover yields five dollars in our national income."

"Vandegrift's survey in Utah shows that one person employed in metal mining industry supports a total population of 14, including workingmen's families and service population."

"If our raw materials are obtained from abroad, from what source will we get the five to one turnover in our national income; who will support the 14 people now sustained by each metal miner; and from where will the money come to finance foreign trade?"

"Manganese, for instance, produced in the

United States with labor at 80 cents per hour cannot compete with manganese produced in India with labor at 2 cents per hour. Neither can miners in India, receiving 2 cents per hour, buy American automobiles, radios and washing machines. It simply will not work."

"However, as each nation sees fit to establish parity on its own basis, increase its production facilities and raise its own standard of living, increased international trade will follow."

## Richkraft Company Enters Building Paper Field

Recently organized to market reinforced building paper, reflecting paint, curing compound, joint sealer and kindred products for the construction industry, is the Richkraft Co. with offices in the Builders Bldg., Chicago and an eastern office in Westport, Conn.

The firm has as its senior partner and general manager, Franklin A. Richards, who was with Sisalkraft Co. for fifteen years. Mr. Richards' plan of converting rolls of paper into job-sized blankets revolutionized use of paper for protective purposes on highway, airport, and other construction jobs. E. M. Reynolds, formerly eastern sales manager for Sisalkraft, is junior partner and eastern manager. H. H. Deputy, who will handle sales, is a general partner, as is Grace E. Shaheen, in charge of the inside work of the firm. The company offers Richkraft light duty, reinforced building paper to contractors and will later make available heavy duty curing paper.

## Dow Predicts Plastic Screens

Dow Chemical Co., Midland, Mich., predict for plastic window screens a waiting post-war market. The company has developed and is manufacturing the plastic, Saran, from which the screens are woven. Saran screening is said to possess several advantages. One of these is corrosion resistance. Plastic screens were installed in two Dow plants, one near Los Angeles, Calif., the other near Freeport, Texas. Saran installations are relatively recent. Some have been in for 12 months and thus far show no deterioration of any type. Light transmission and visibility remain constant other than as they may be affected by accumulation of soot or other foreign material. The entire production of Saran screen is now being taken for military use. At least three fabricators, already experienced in its manufacture, will bid for the post-war civilian market.

## Increased Salvage of Waste Paper Held Necessary

In a telegram to the American Association of School Administrators, Donald M. Nelson, chairman of WPB, said the shortage of wood pulp and available waste paper at paper mills is critical. Nelson said the situation will become worse, adding that salvage of waste paper must be increased from 542,000 tons per month to 667,000 tons.

## Fairbanks, Morse & Company Opens Tulsa Branch Office

Fairbanks, Morse & Company have opened a new office at 1335 Hunt Bldg., Tulsa, Oklahoma, under the management of Frank D. Ratcliffe, District Manager, Oil Industry Sales.

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75,000	" " 100 ft. "
60,000	" " 60 ft. "
50,000	" " 140 ft. "
50,000	" " 83 ft. "
50,000	" " 60 ft. "
30,000	" " 60 ft. "

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**FOR SALE**—One Type L, 2-cylinder, 4 cycle, 80 H.P., 720 R.P.M. **Fees Full**. Diesel Engine, direct-connected to a 2300 volt General Electric Alternating Current Generator and Exciter. This engine is in good condition and has been used very little; may be seen at Florida's site, 12 miles east of Milton, Florida, on U. S. Highway No. 30. Also one, 144,000 gallon steel water tank. For further particulars, address: FRANK D. QUINN, Owner, 106 East 13th Street, Austin II, Texas or J. E. COX, Custodian, Harold, Florida.

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Complete boiler plant, 350 h. p. Casey-Hedges water tube boiler, 160# approved pressure with all auxiliaries and stack. A bargain.

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—525 HP Heine, str. tube, 200#  
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—150 HP F.R.T. Stokers, 150#  
—37 HP Vulcan Locomotive, 100#  
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—300 HP Keefer, str. tube, 160#  
—750 HP Heine, str. tube, 200#

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**VALVES and FITTINGS**  
All Sizes in Stock  
NEW-USED  
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Brooklyn, N.Y.

180 H. P. Horiz. 2-Cyl. Full Diesel D. C. to 150 KVA 3/60/2300 Volt. ALLIS-CHALMERS 280 H. P. Horiz. 2-Cyl. Full Diesel DeLaVergne D. C. to 240 KVA G-E 3/60/2300 Volt. 75 H. P. 4-Cyl. WAUKESHA; MECHANICAL ENGINEERS, APPRAISERS, BUYING, CONSTRUCTING, OPERATING PLANTS, also Offering Supplies, Boilers, Engines, Pumps, Motors, Compressors, Pipe, Valves, Fittings, Structural, Steel, etc. W. L. Sullivan, P.O. Box 236, Okla. City (1), Okla.